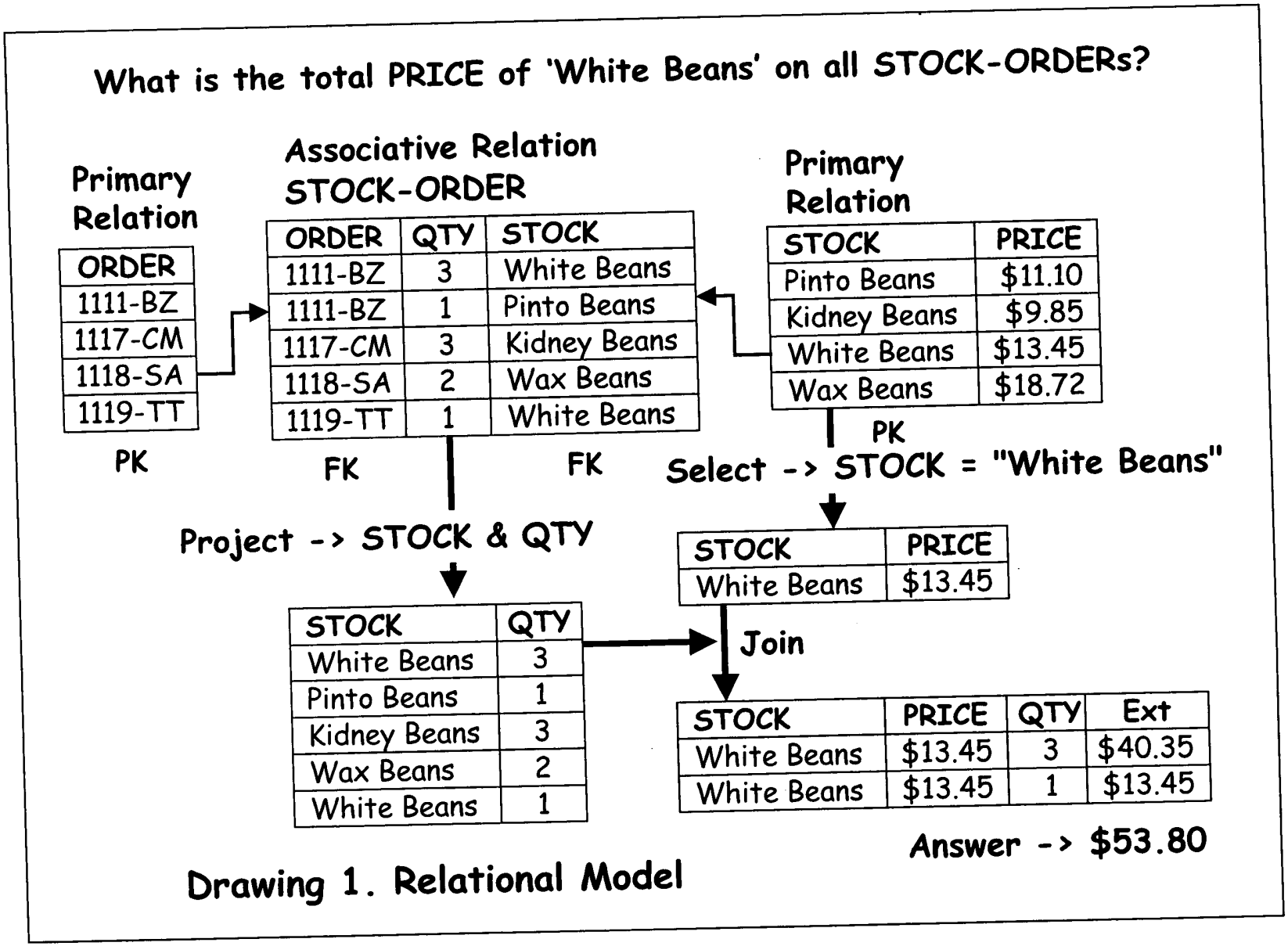
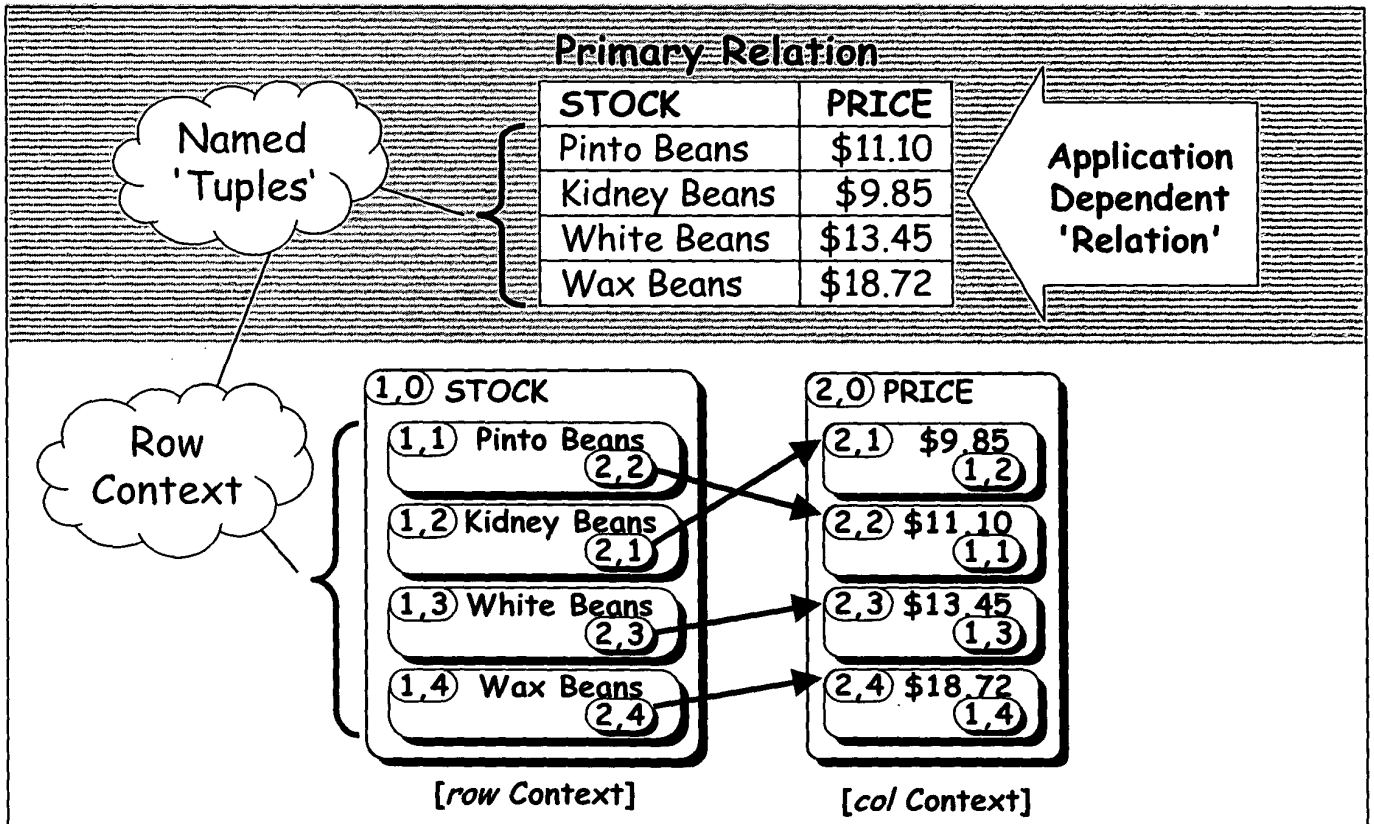
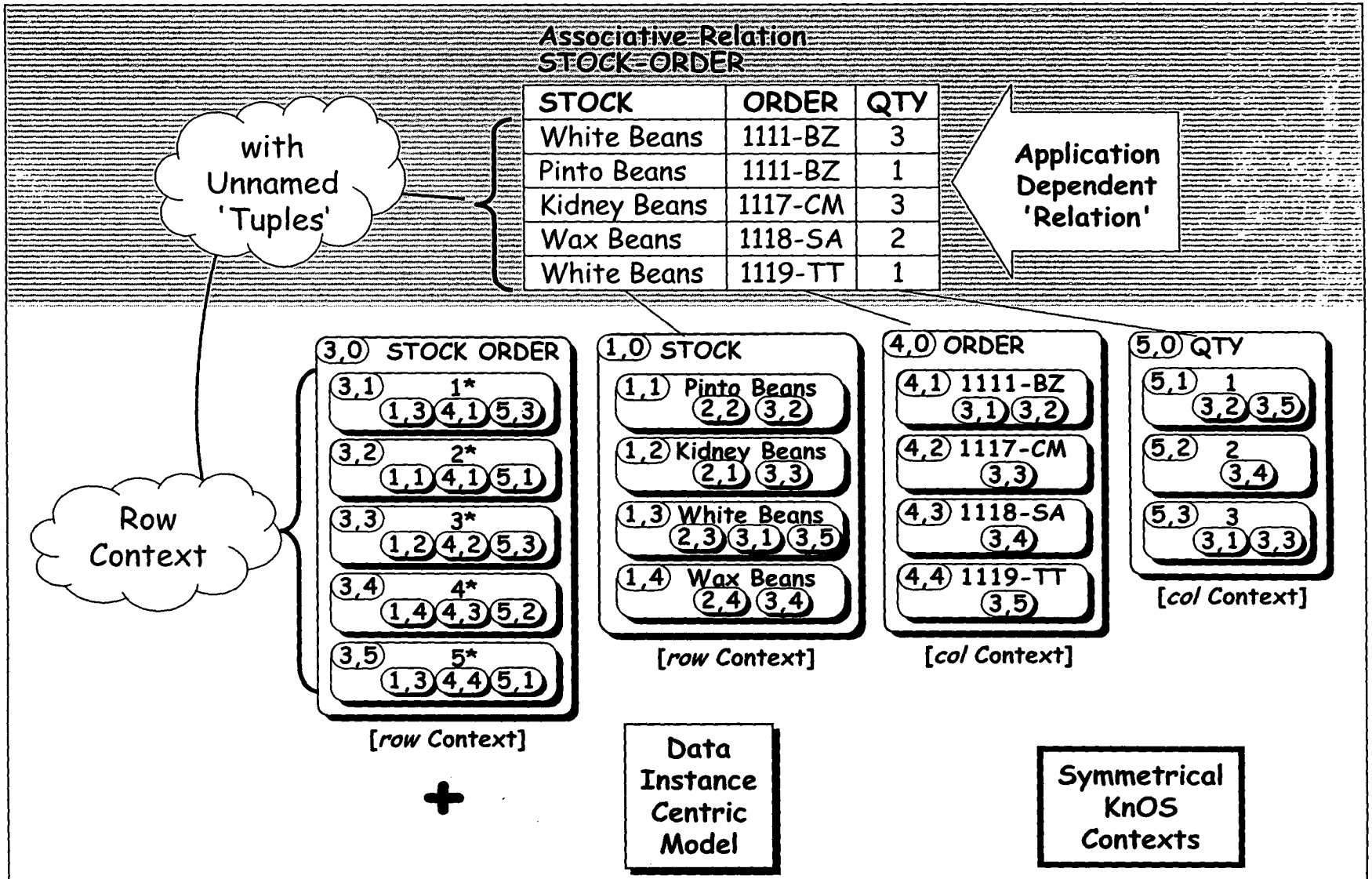


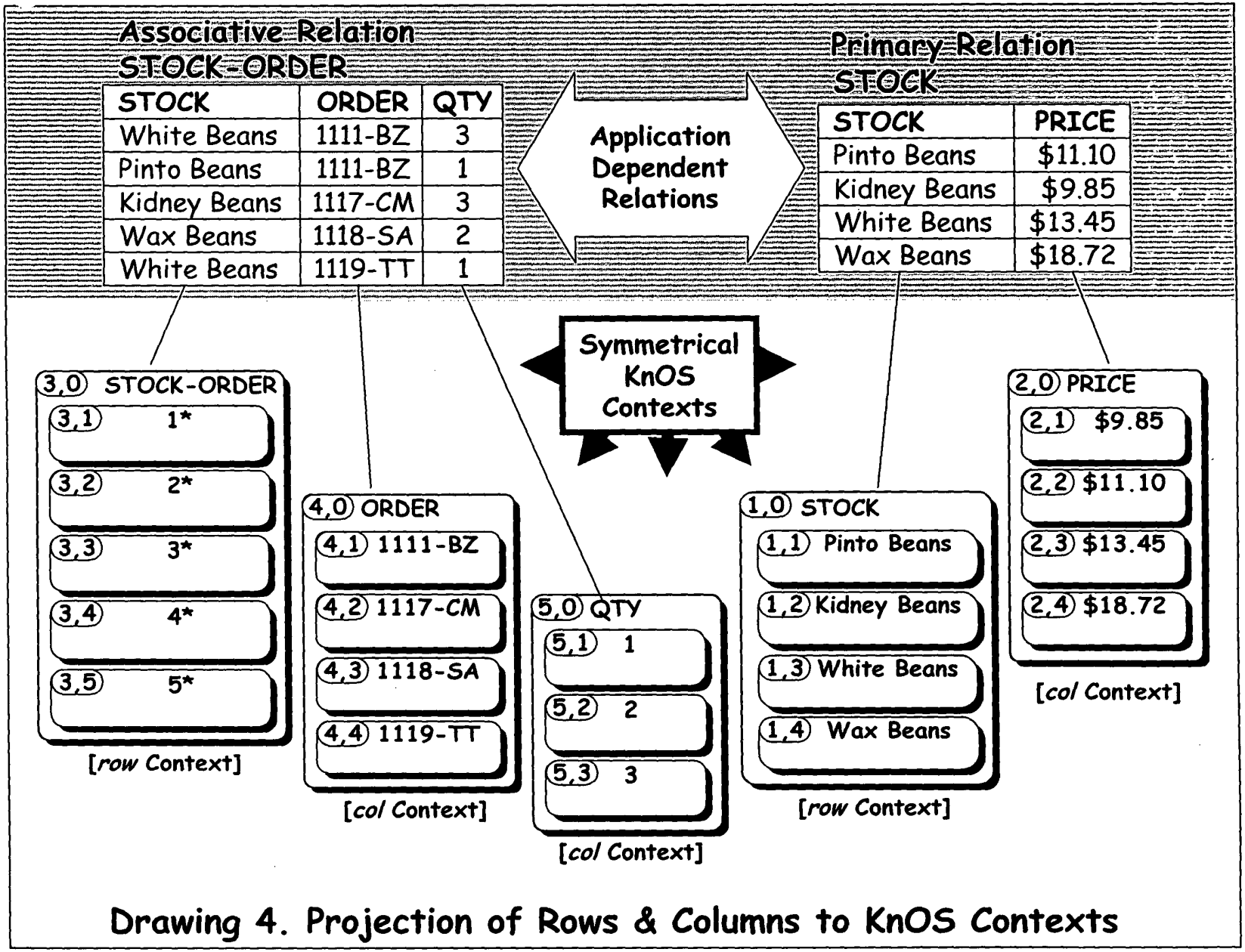
Drawing 1. Relational Model



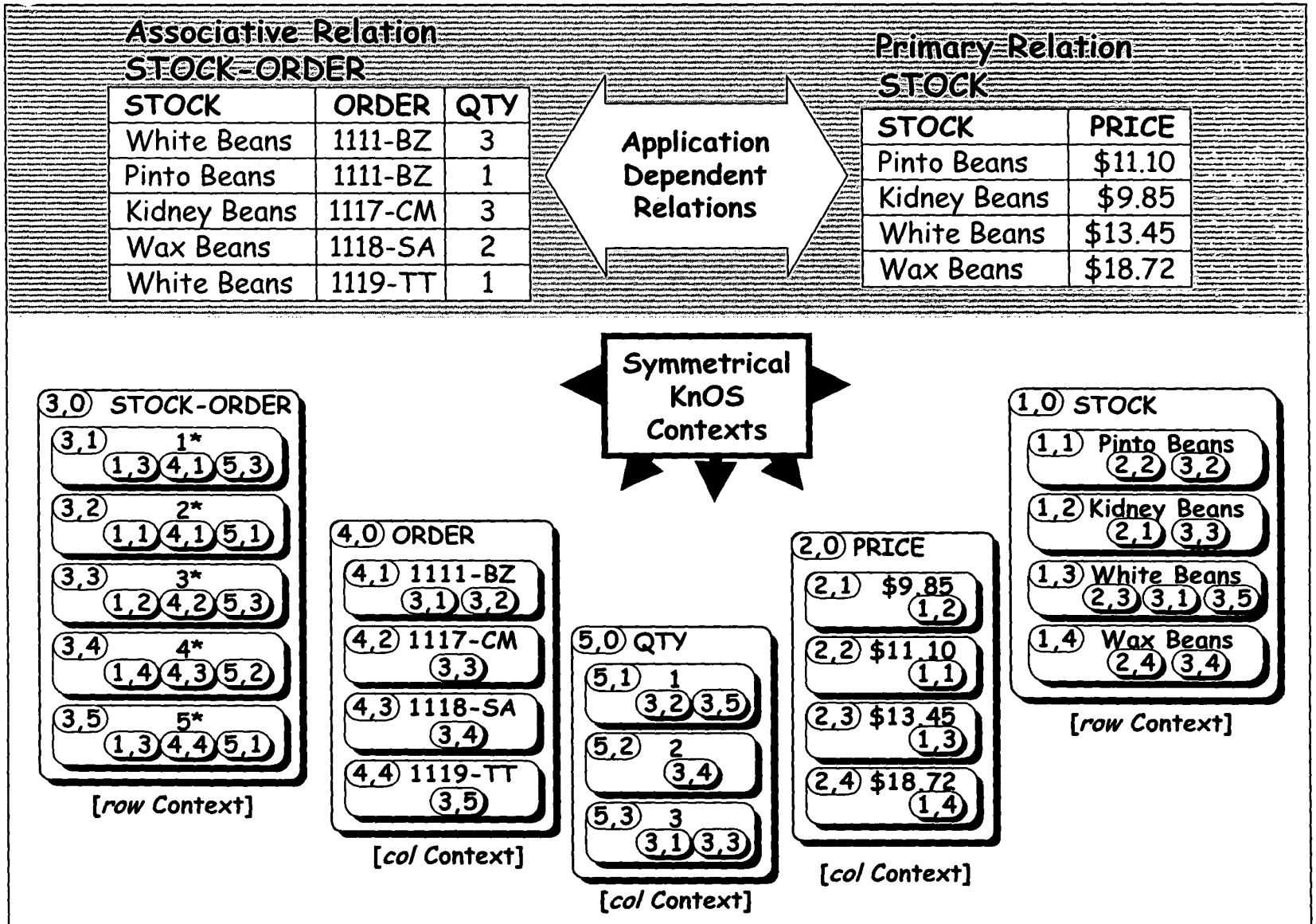
Drawing 2. Assimilating a 'Primary' Relation



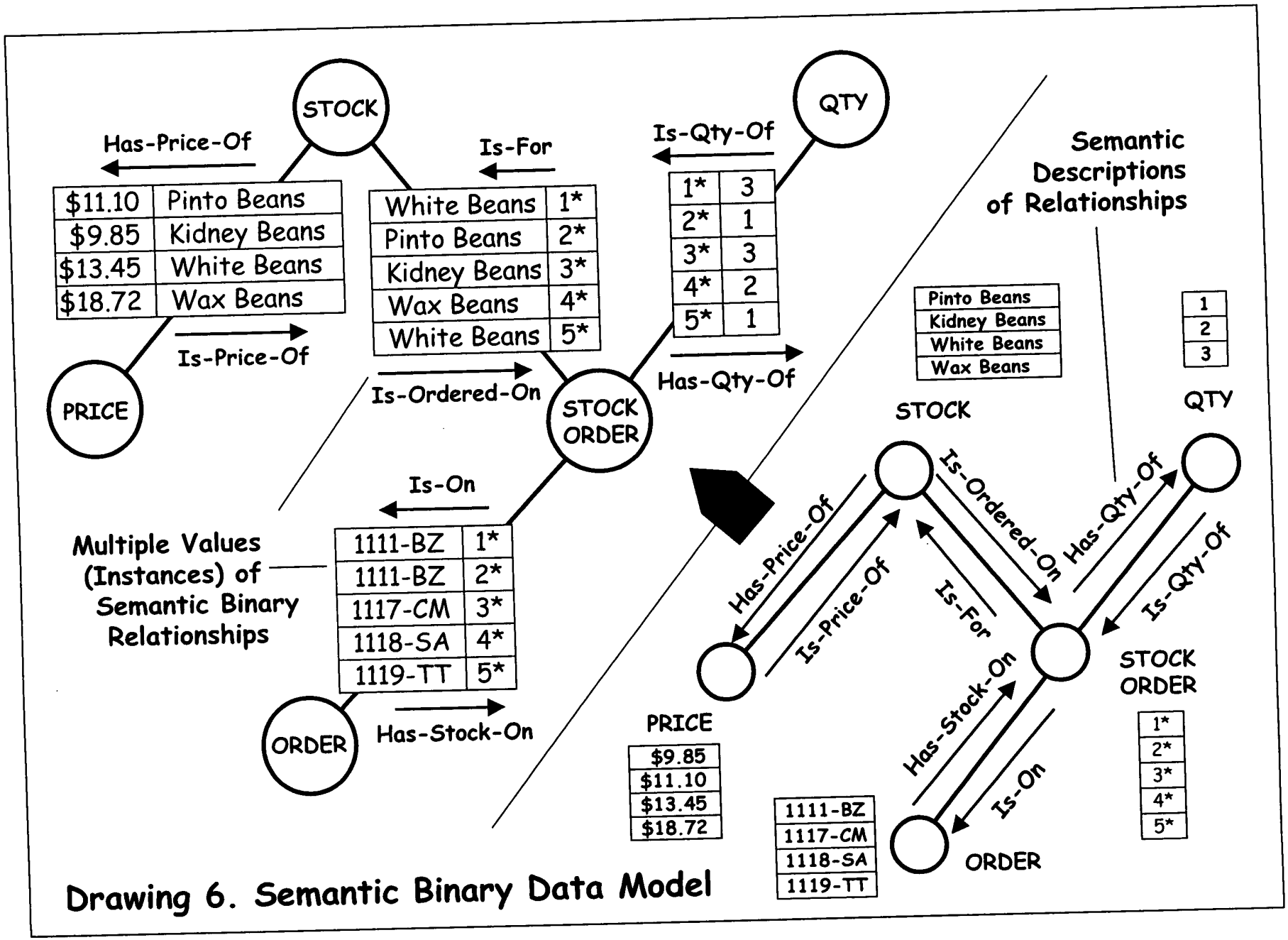
Drawing 3. Assimilating an 'Associative' Relation



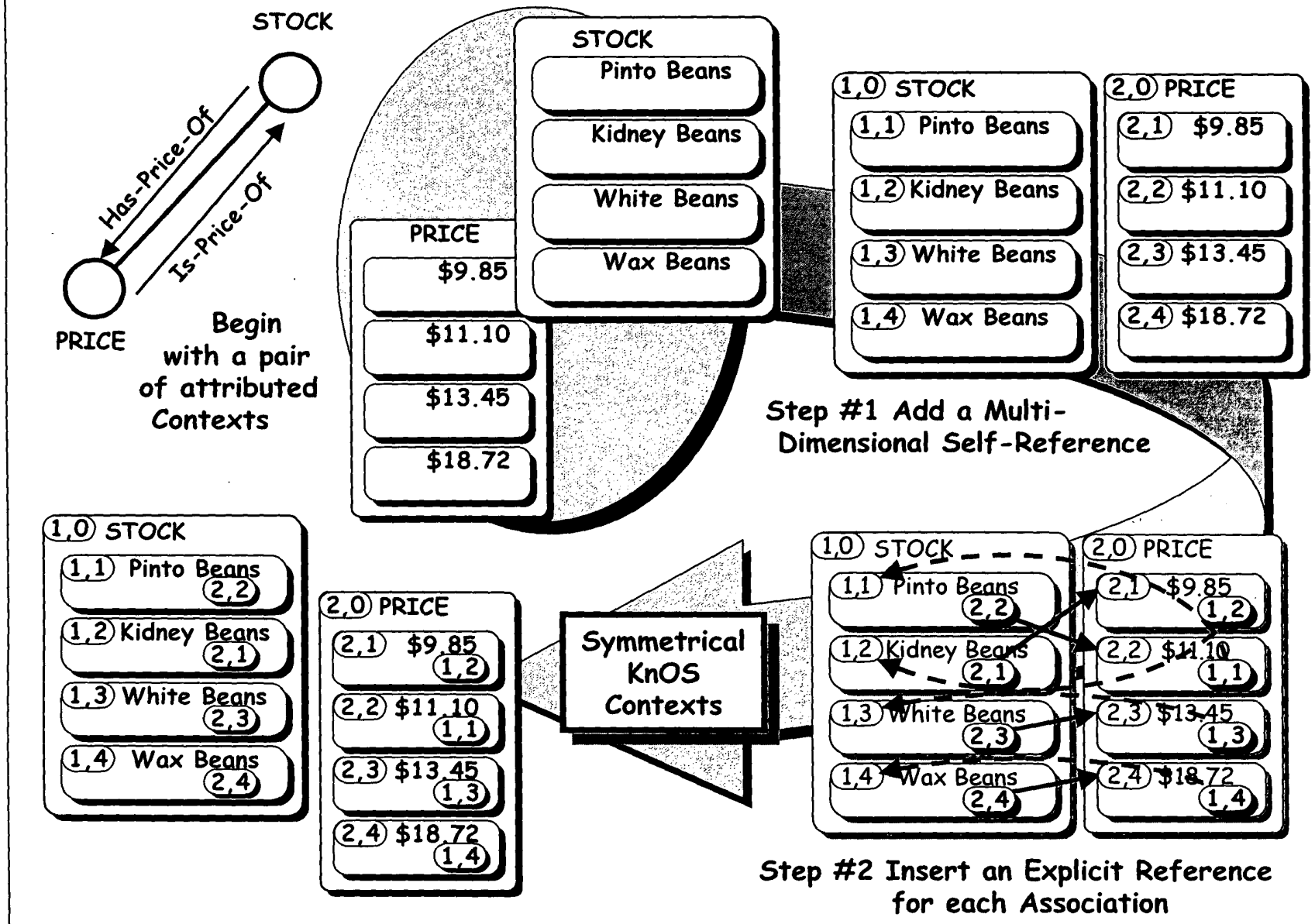
Drawing 4. Projection of Rows & Columns to KnOS Contexts



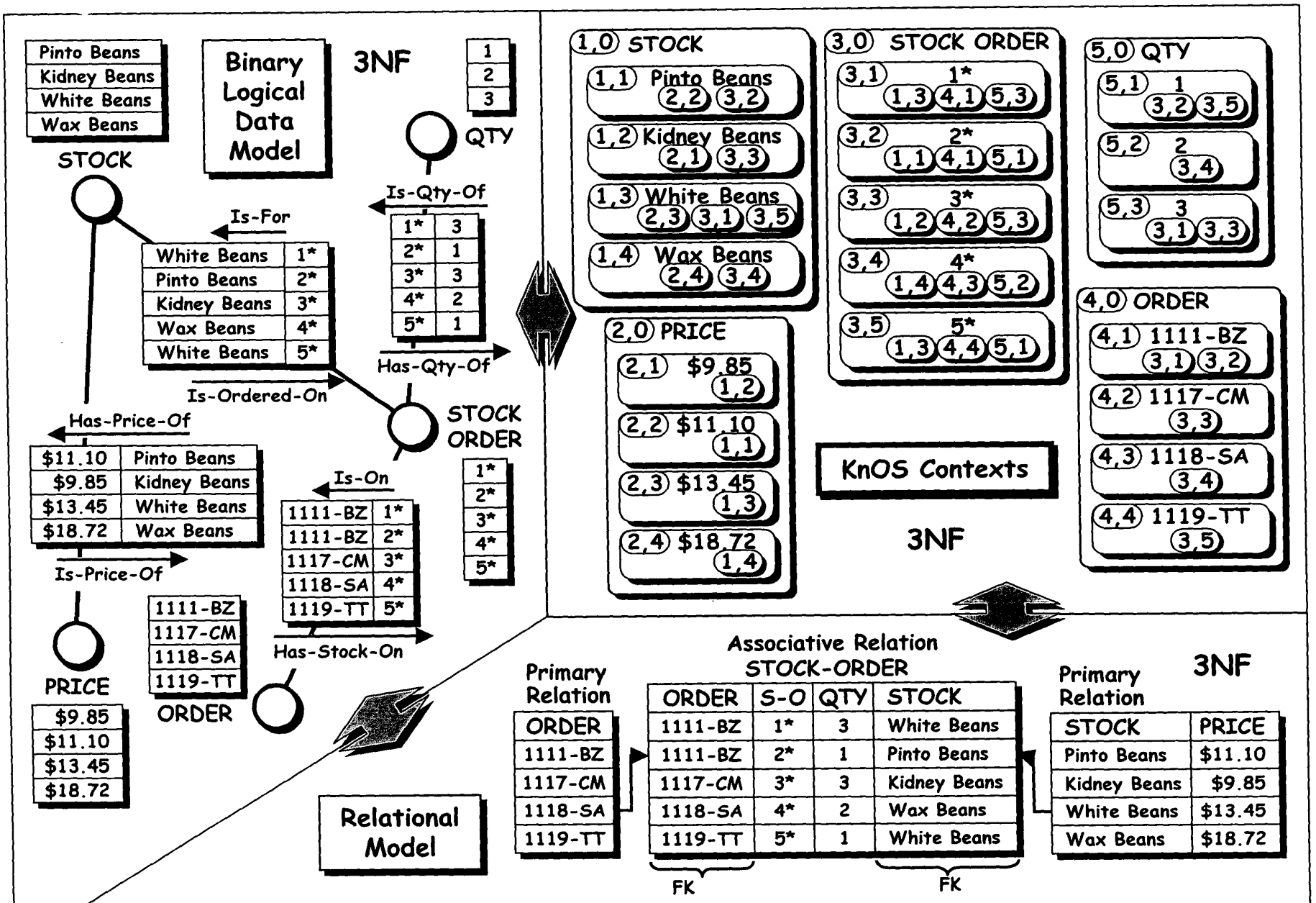
Drawing 5. Assimilation of Relationships to KnOS Contexts



Drawing 6. Semantic Binary Data Model

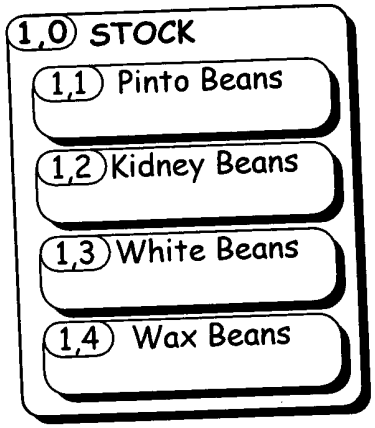


Drawing 7. Representing Binary Associations in KnOS Contexts



Drawing 8. Comparison of Data Representations

Why is a KnOS Context *Application Independent*?



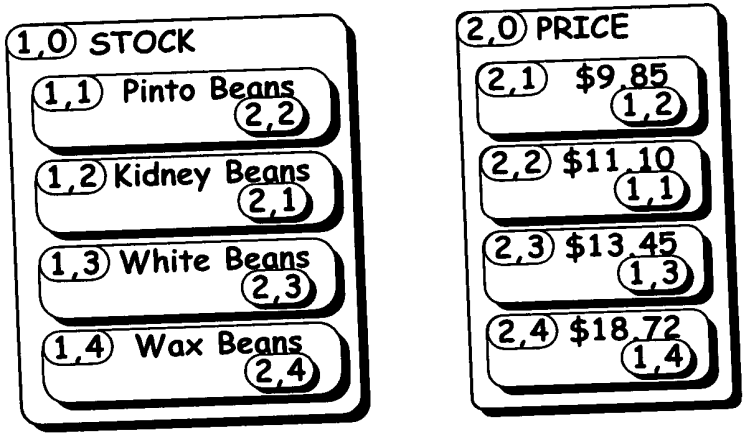
{Reference-Data Instance-VKSet}

\+ STOCK PRICE

A fundamental change in the application, like adding a PRICE attribute to the STOCK relation ….

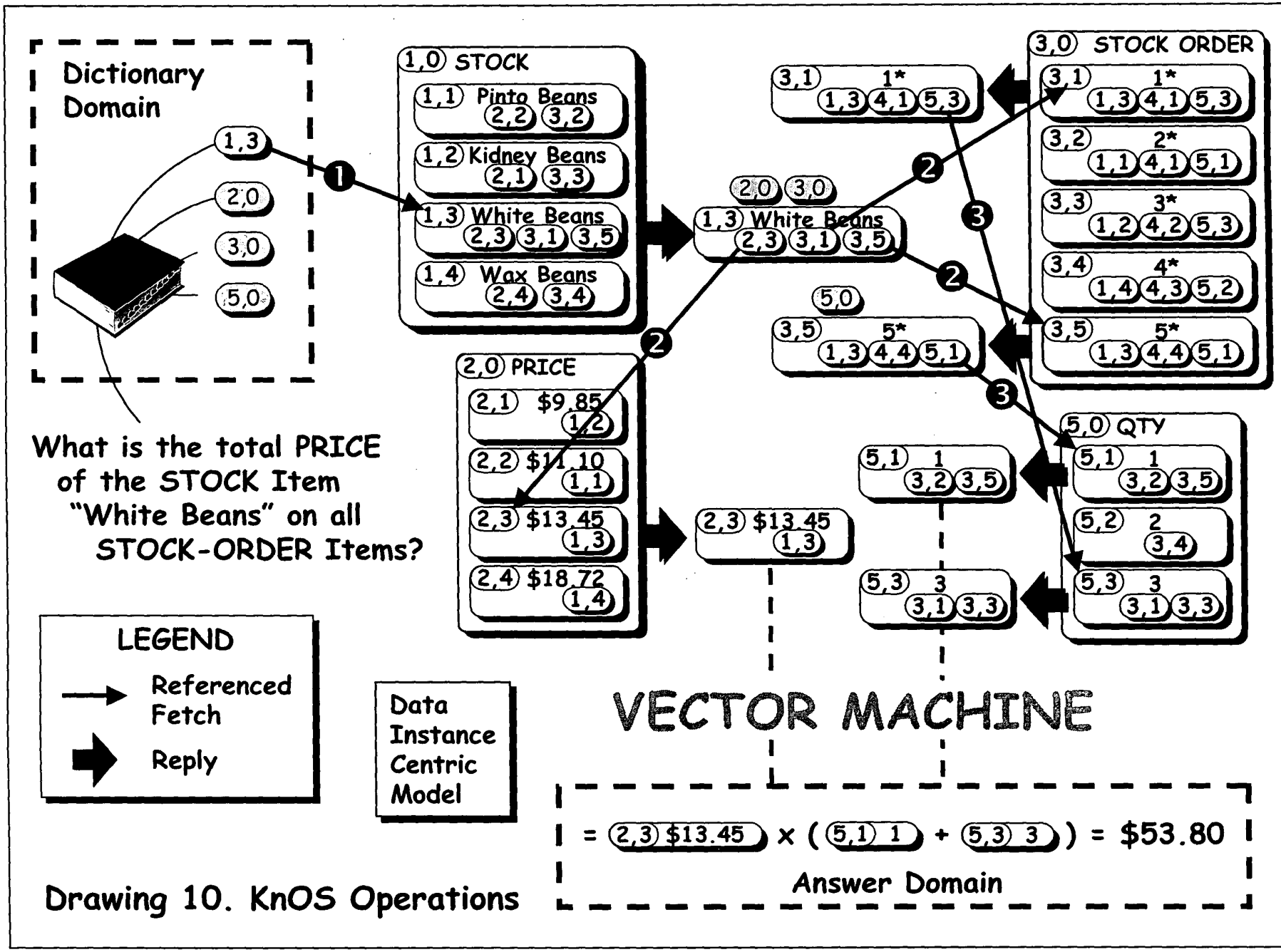
…. does not alter the *structure* of the STOCK Context

=

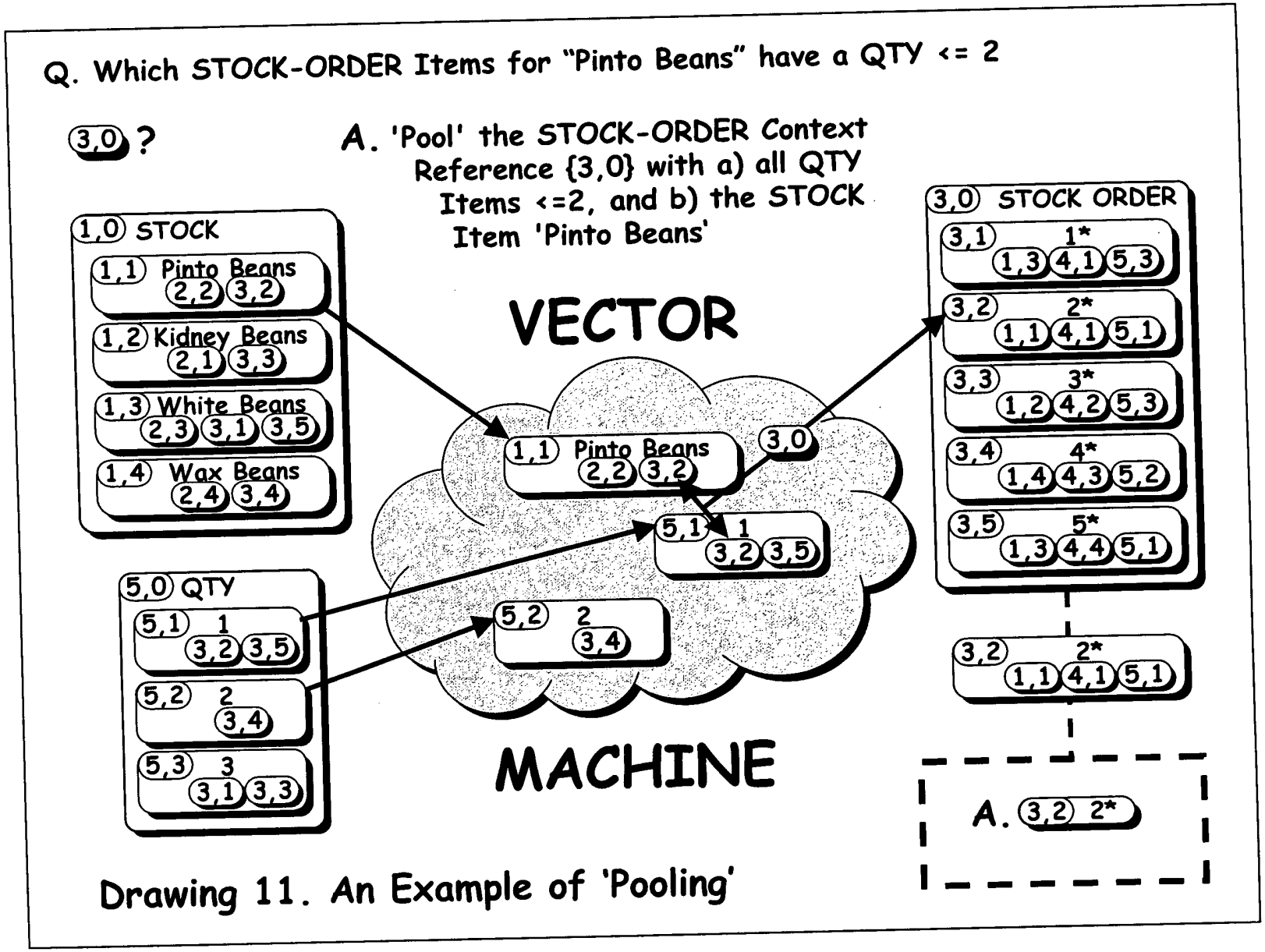


{Reference-Data Instance-VKSet}

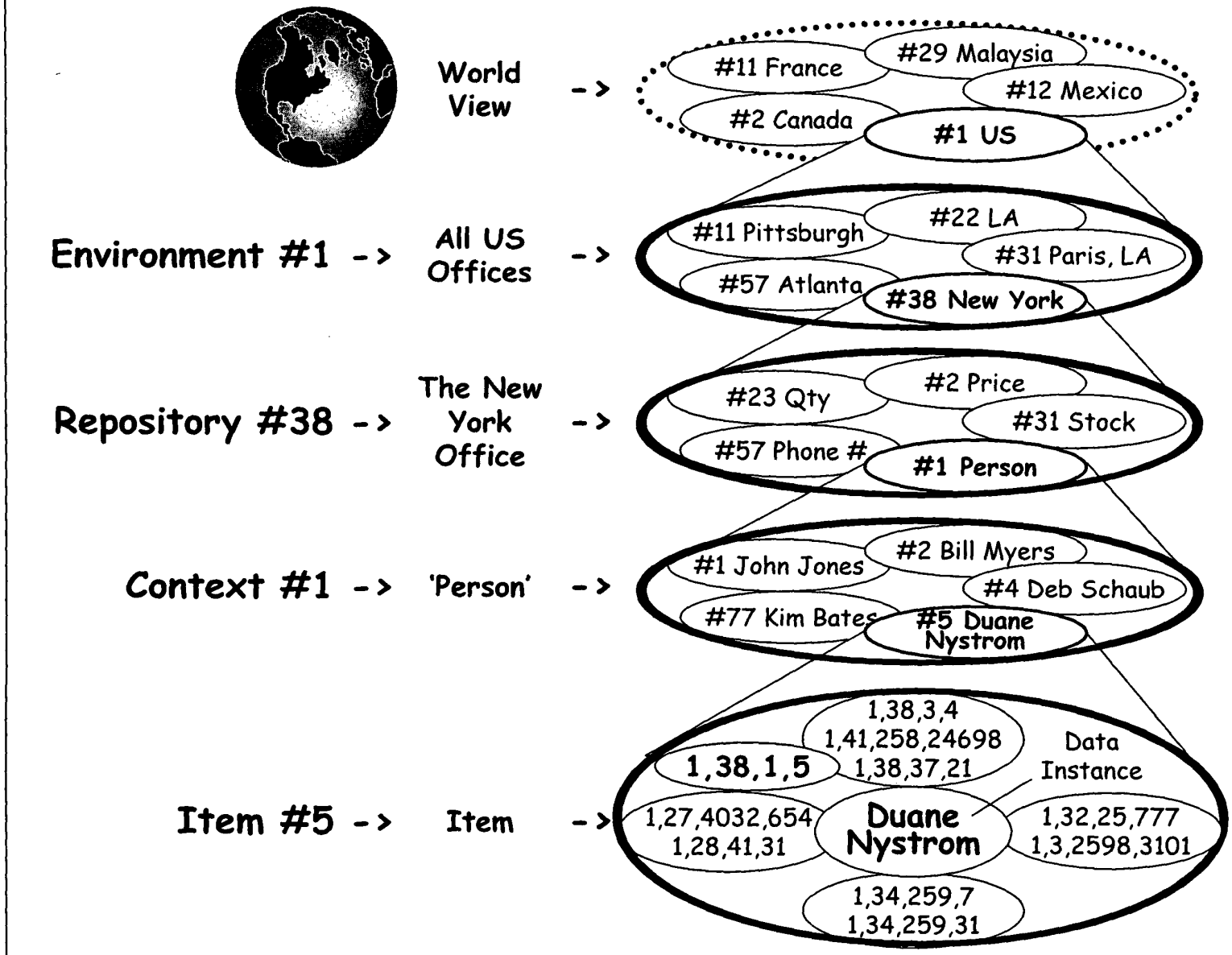
Drawing 9. Application Independence



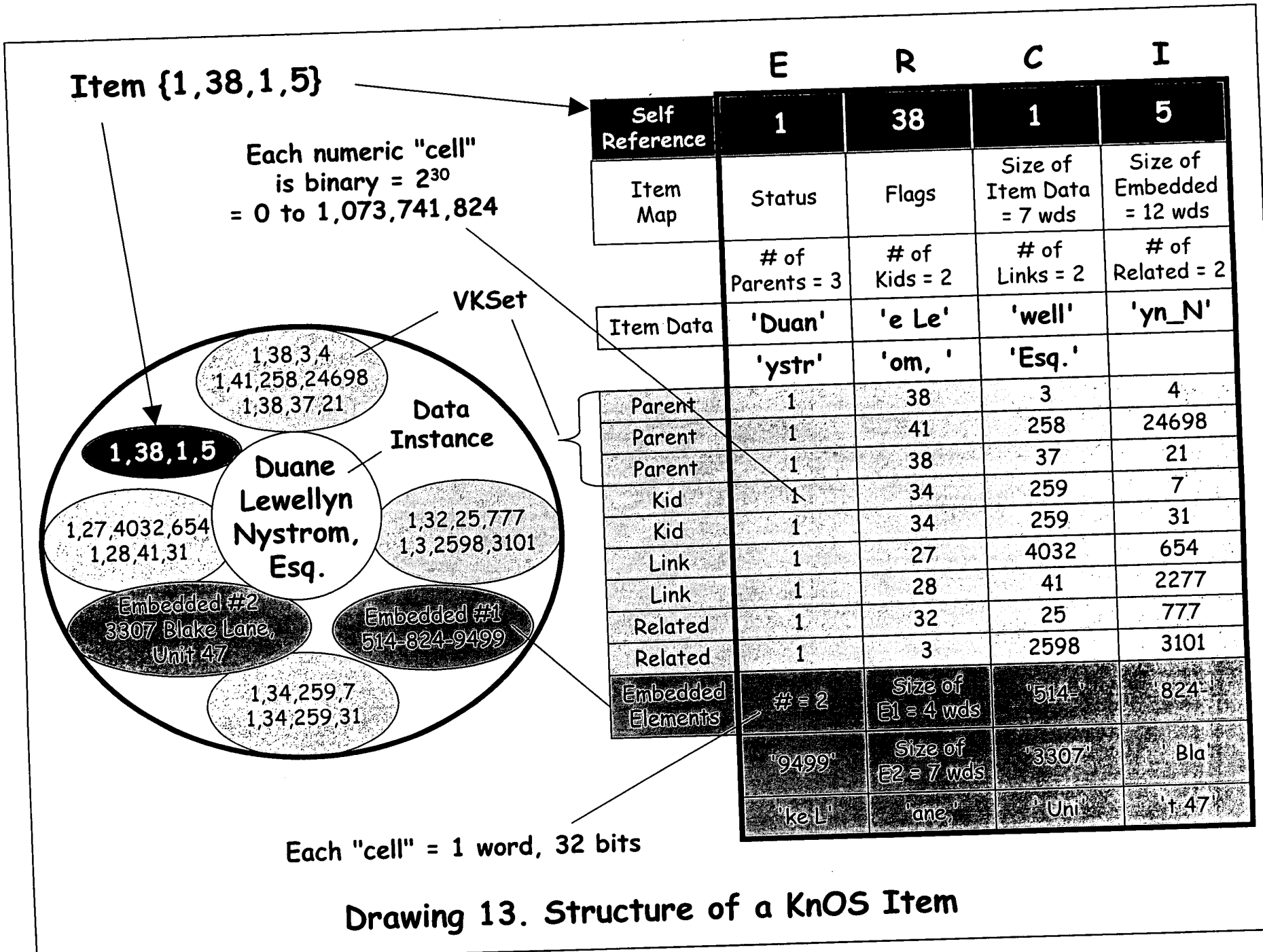
Drawing 10. KnOS Operations



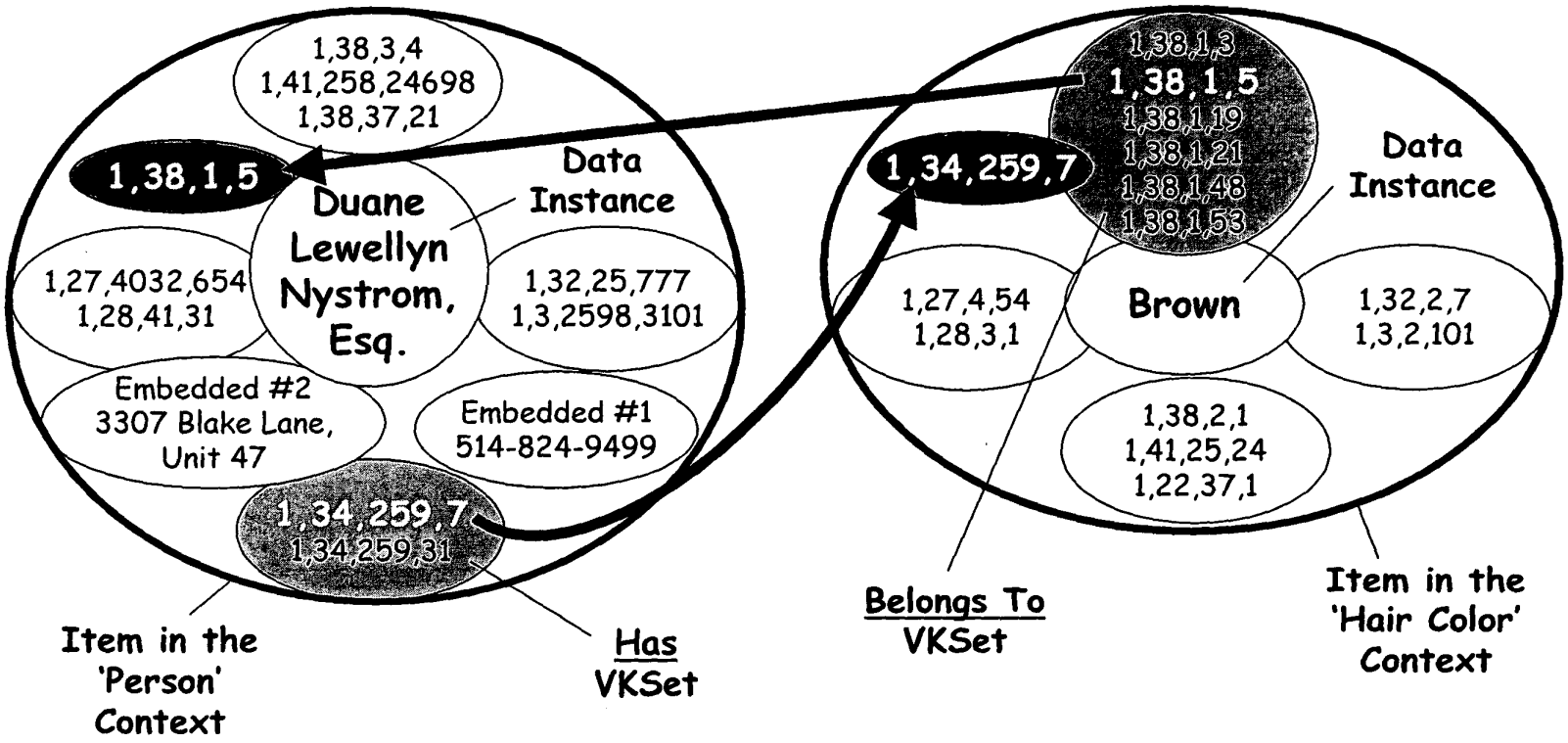
Drawing 11. An Example of 'Pooling'



Drawing 12. Multi-Dimensional Reference Model



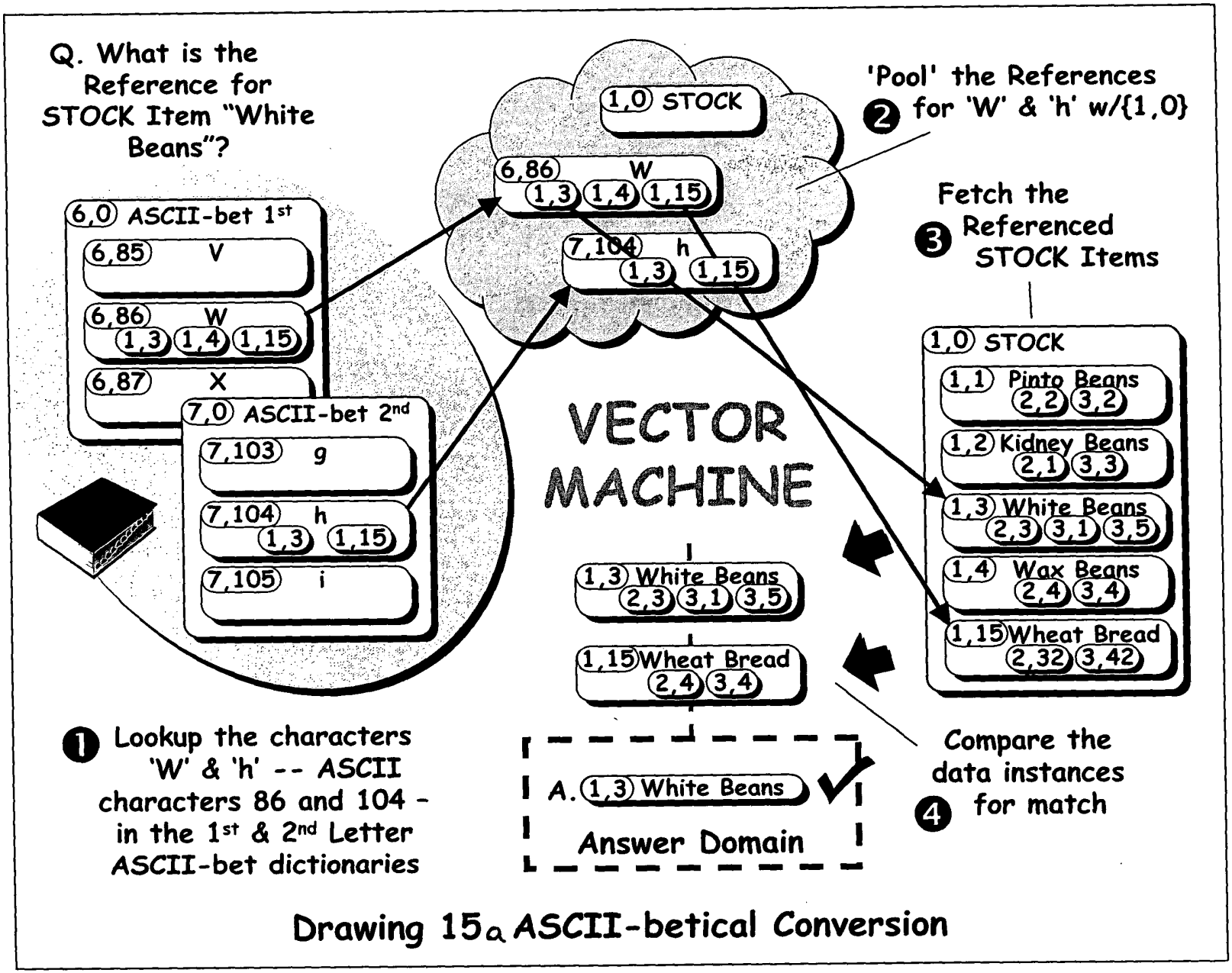
Drawing 13. Structure of a KnOS Item



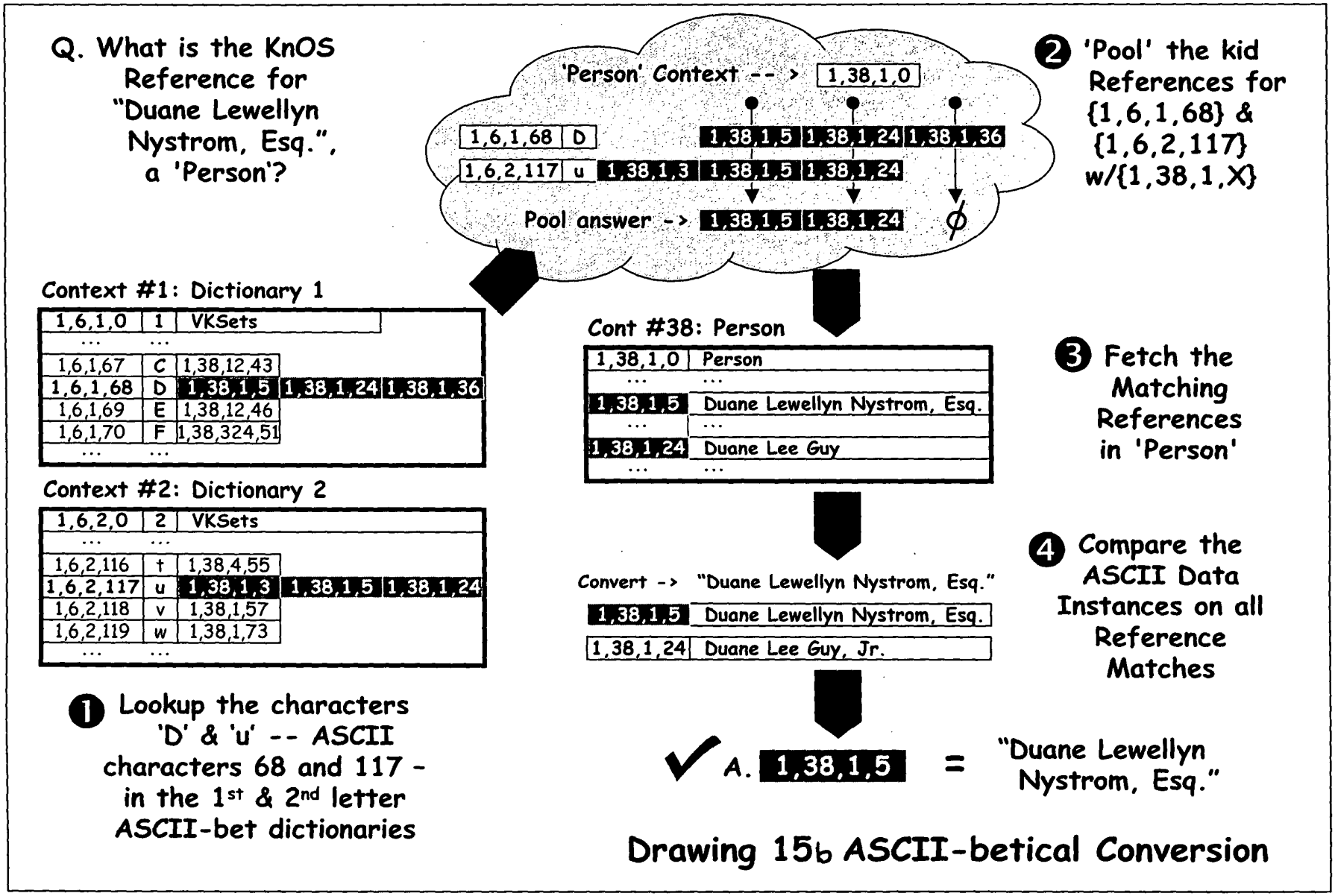
Person *Duane Lewellyn Nystrom, Esq.* has *Brown* Hair Color

Brown Hair Color belongs to Person *Duane Lewellyn Nystrom, Esq.*

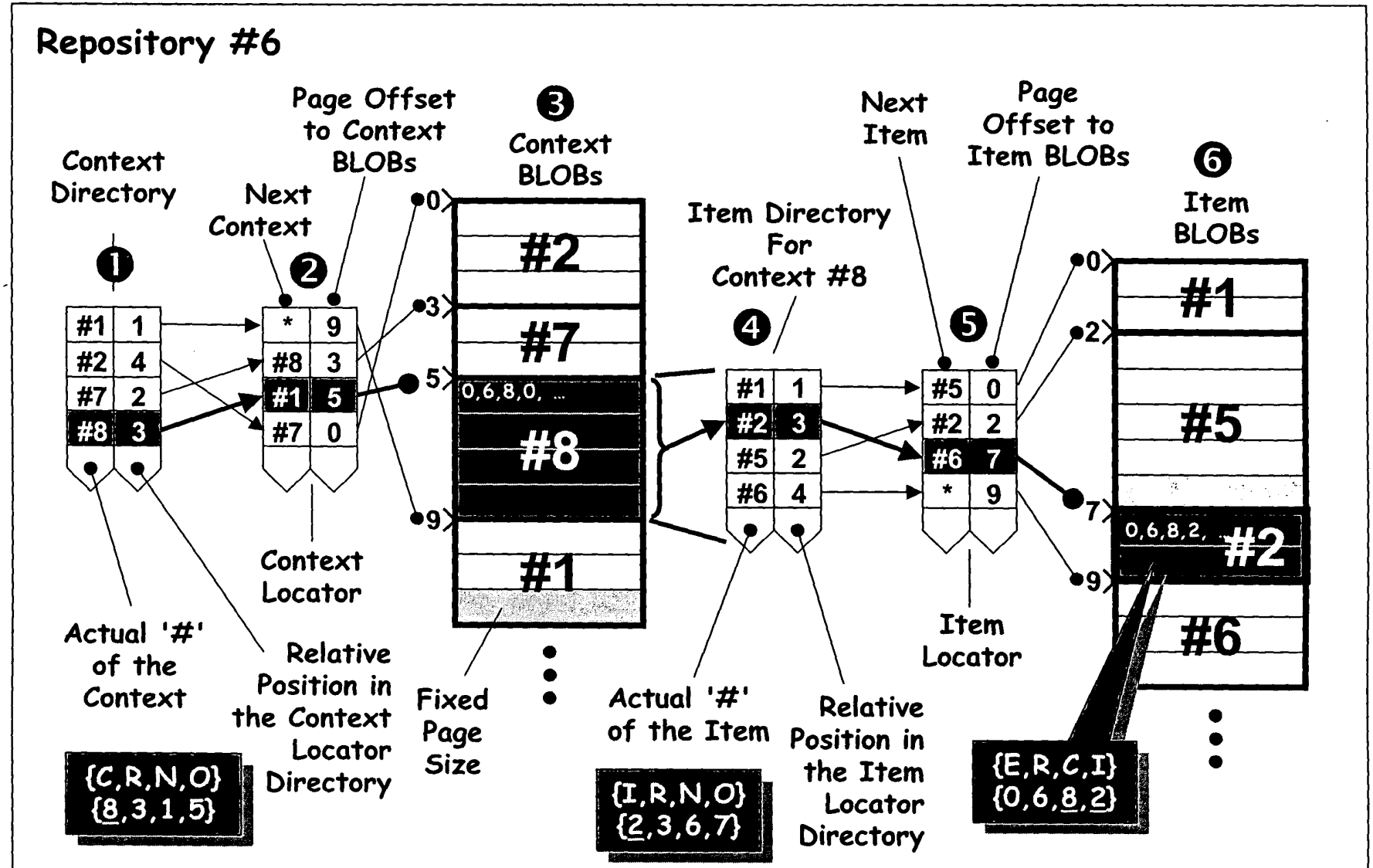
Drawing 14. Bi-Directional References



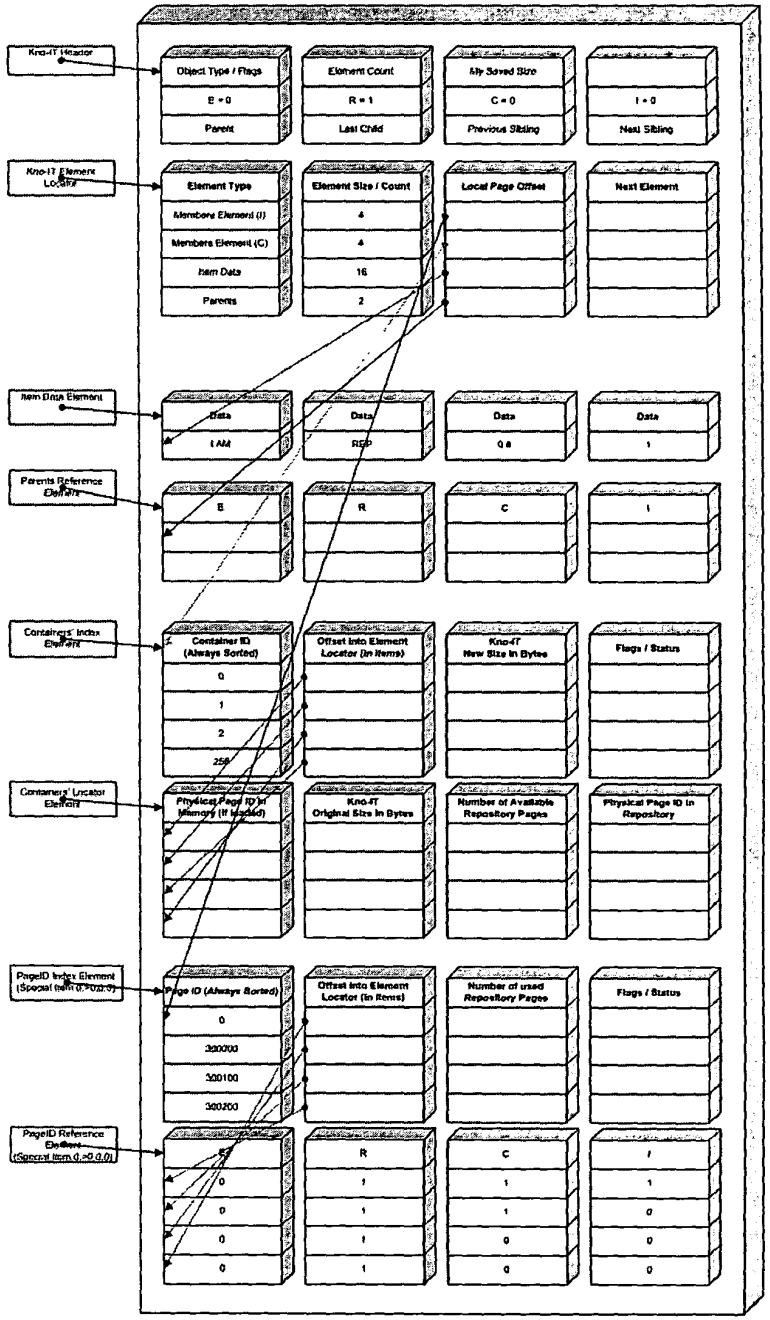
Drawing 15a ASCII-betical Conversion



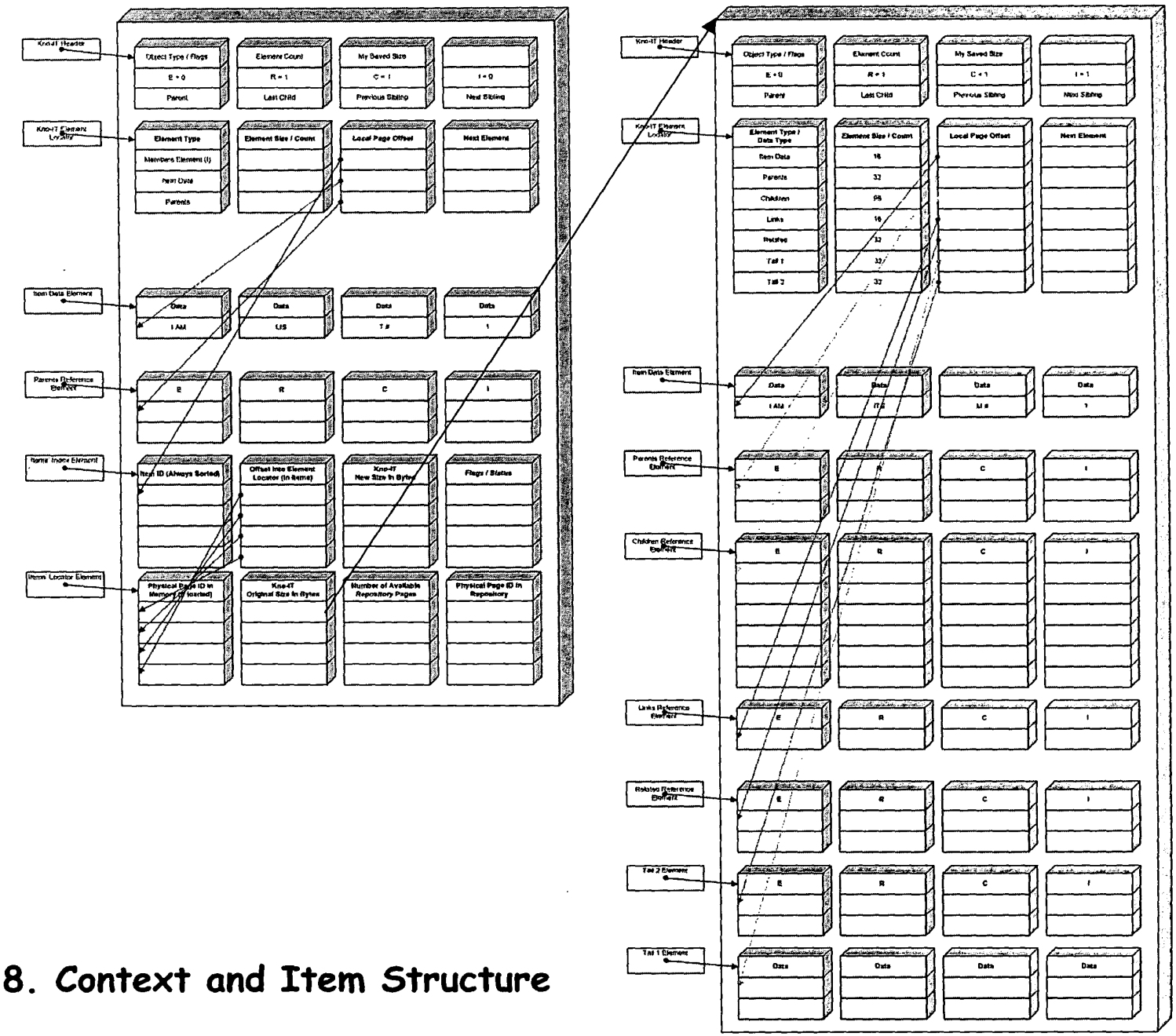
Drawing 15b ASCII-betical Conversion



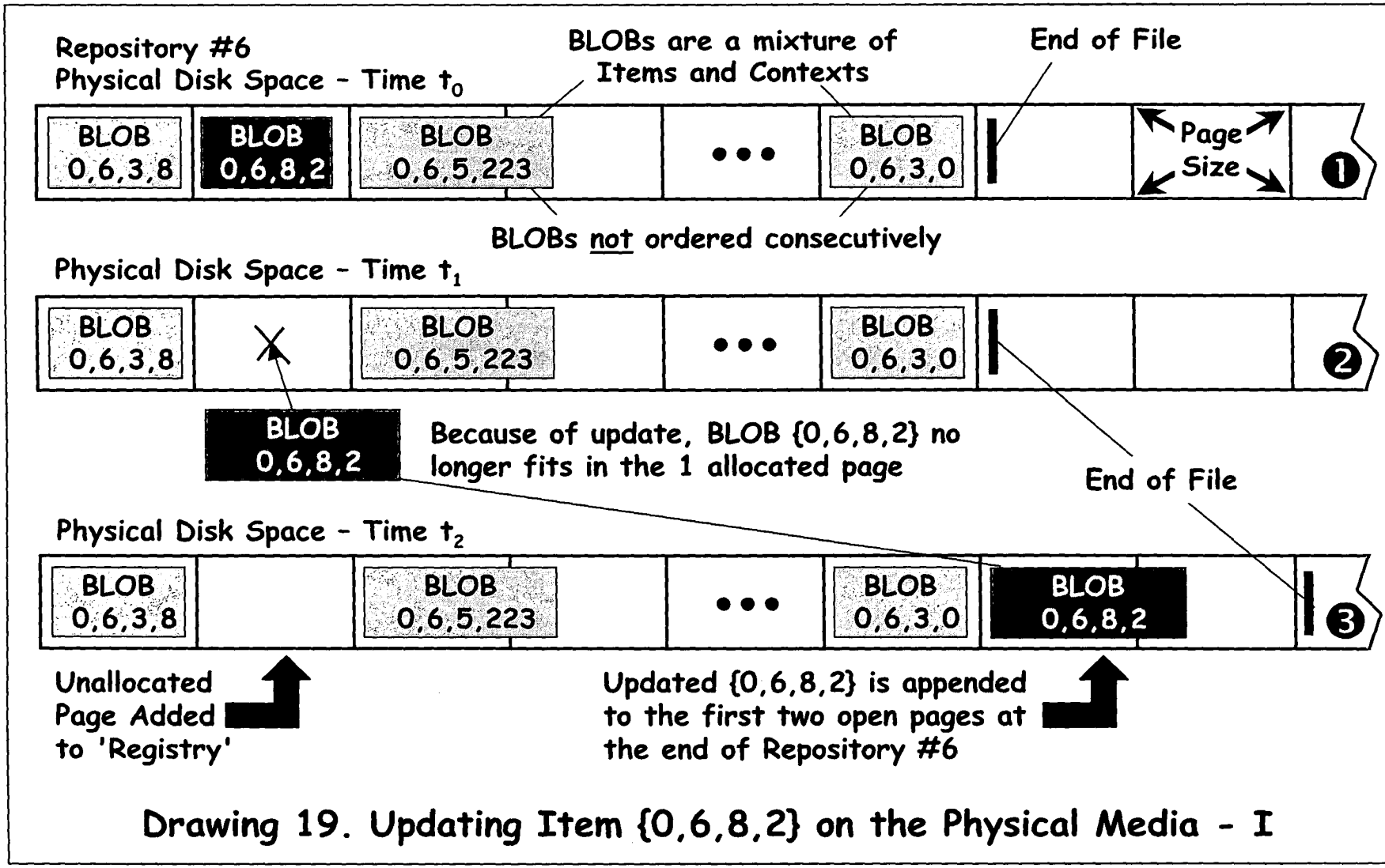
Drawing 16. Locating Item {0,6,8,2} on the Physical Media



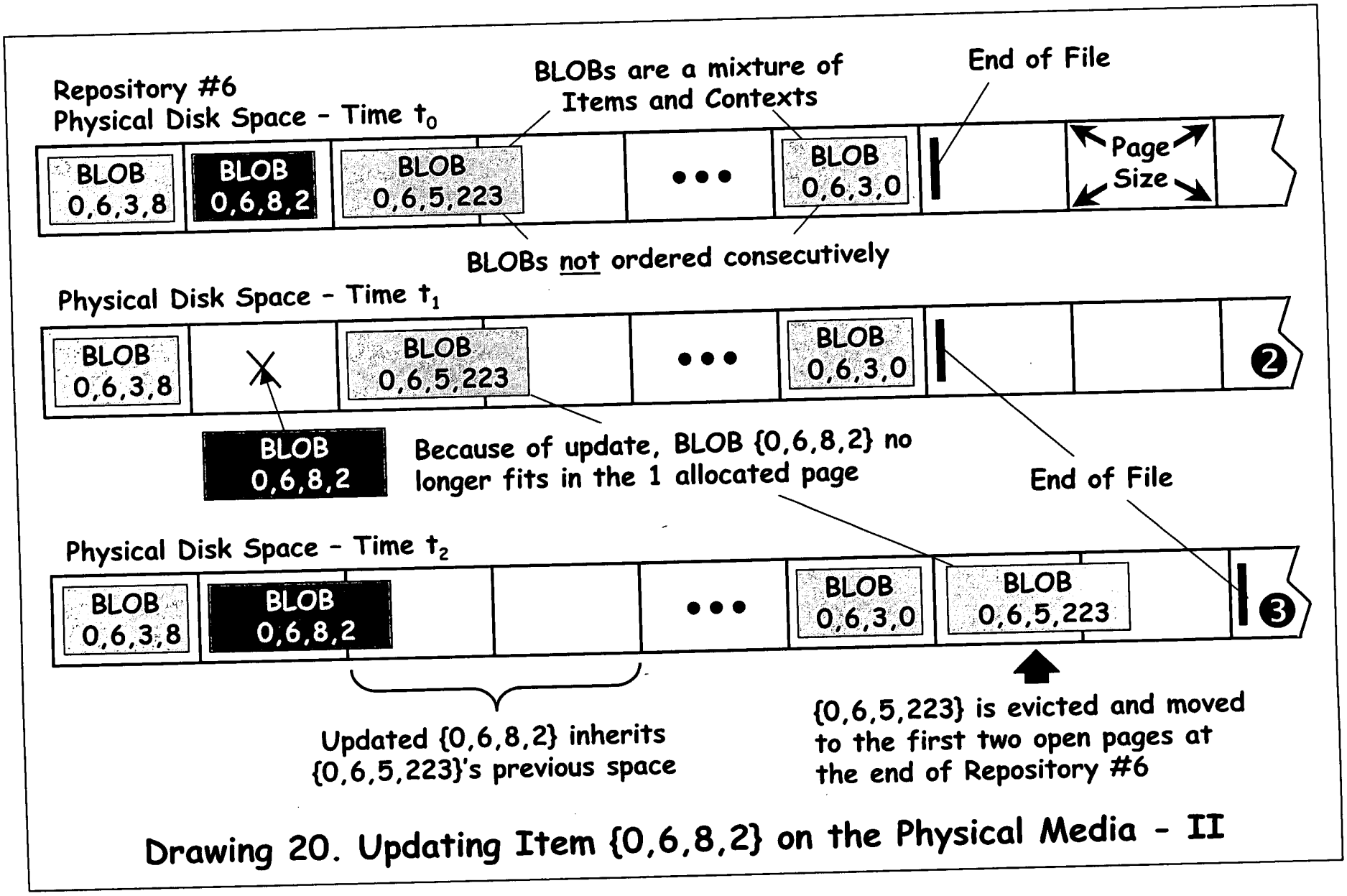
Drawing 17. Repository Structure



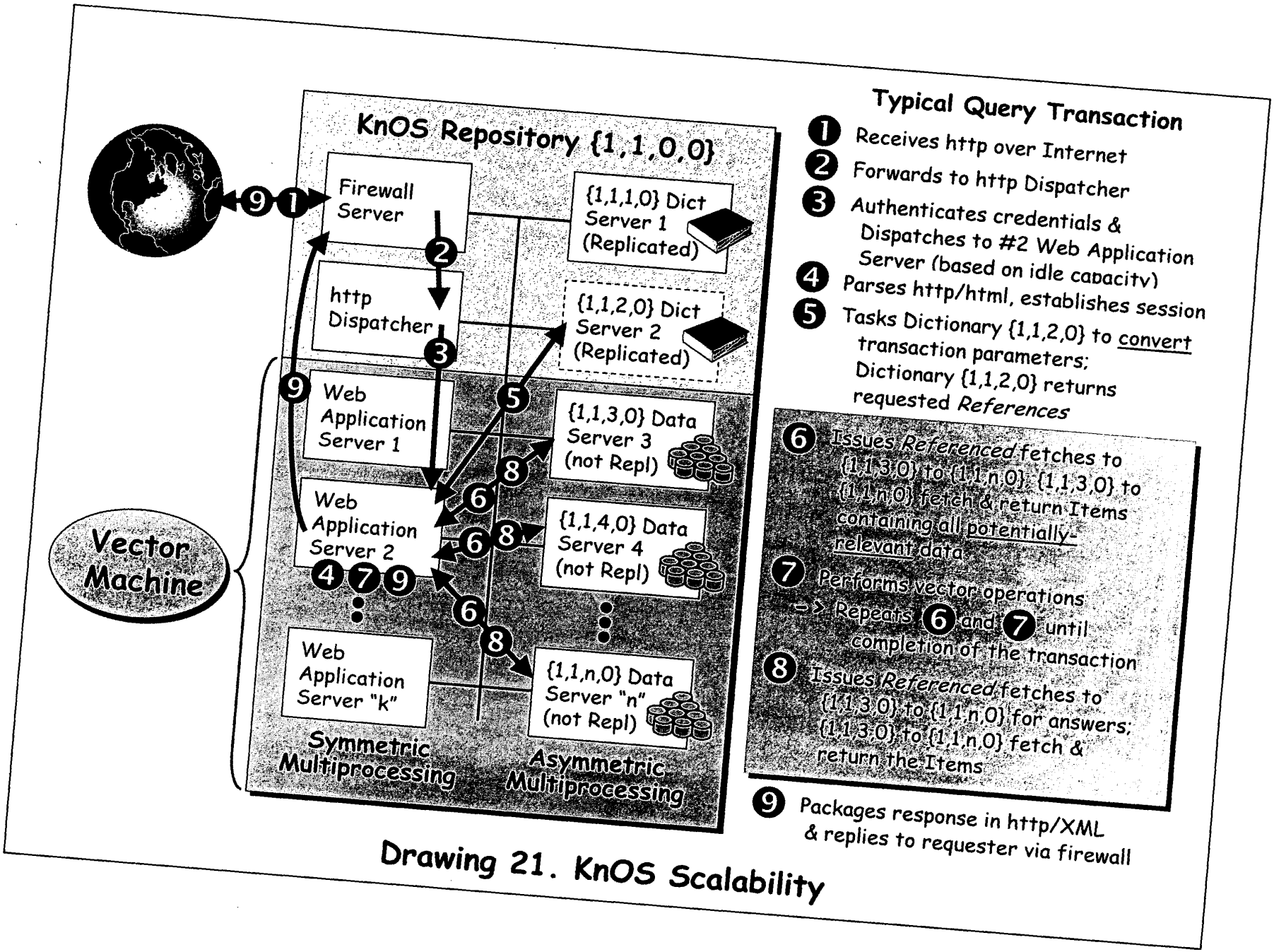
Drawing 18. Context and Item Structure



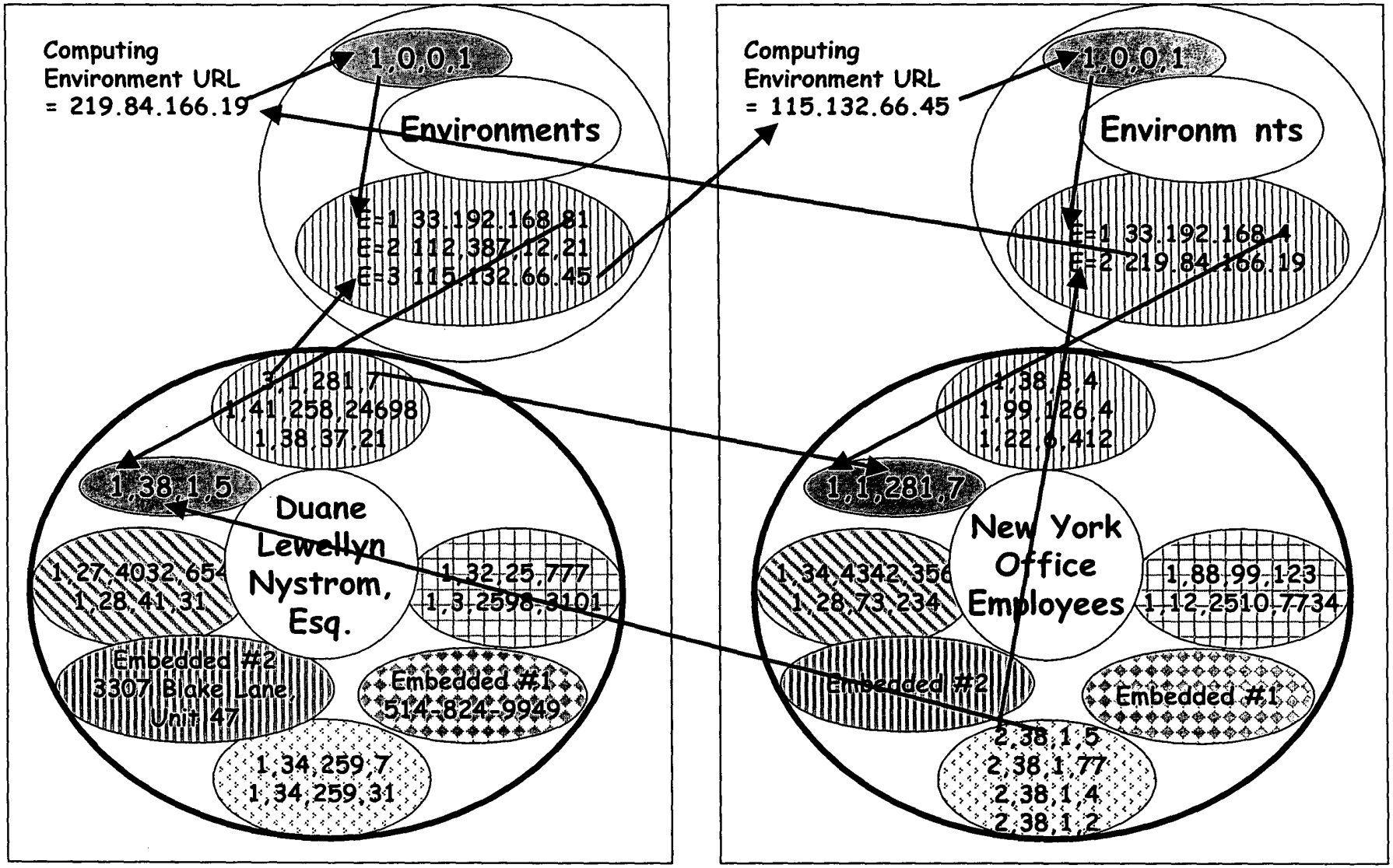
Drawing 19. Updating Item {0,6,8,2} on the Physical Media - I



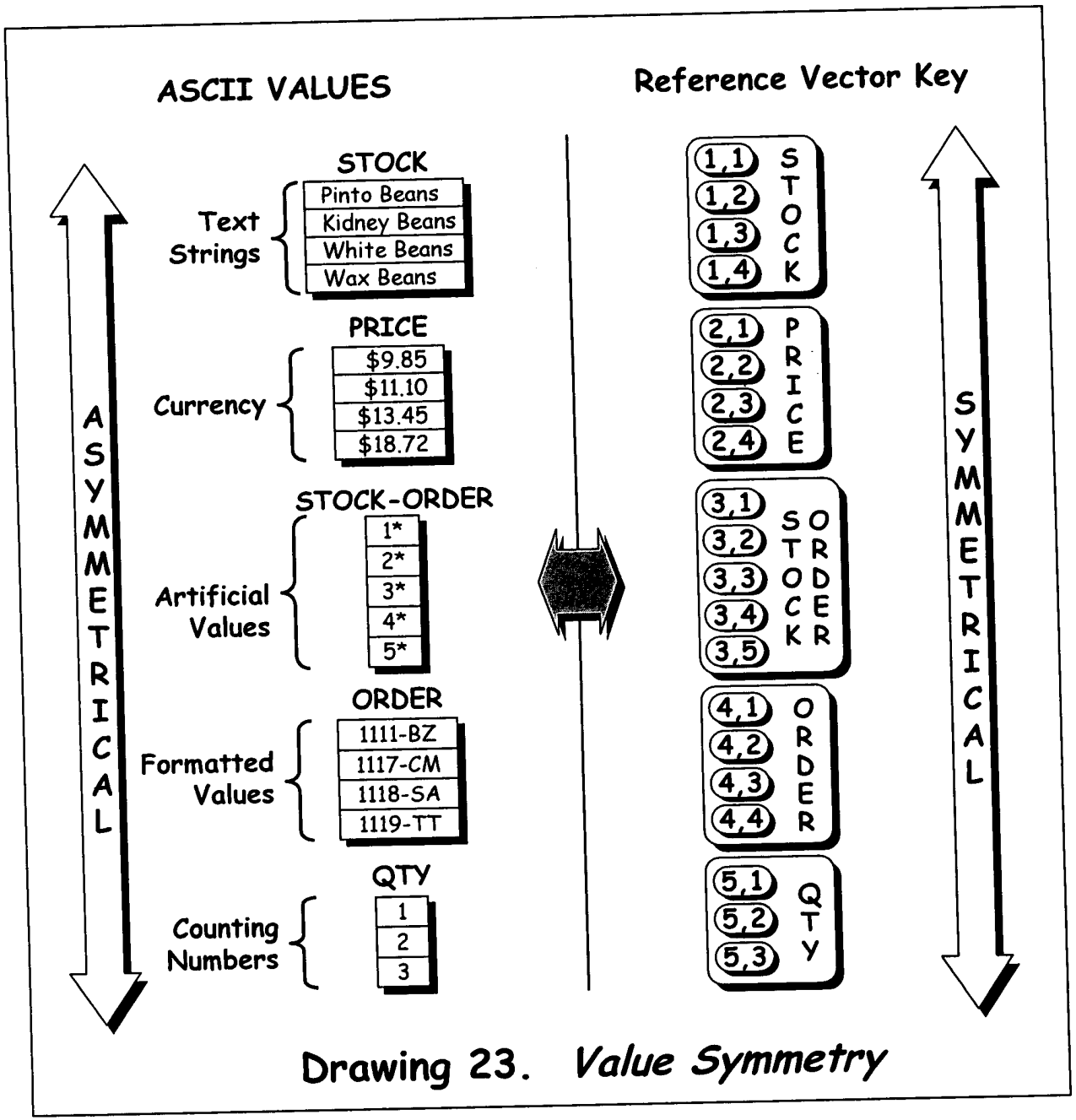
Drawing 20. Updating Item {0,6,8,2} on the Physical Media - II



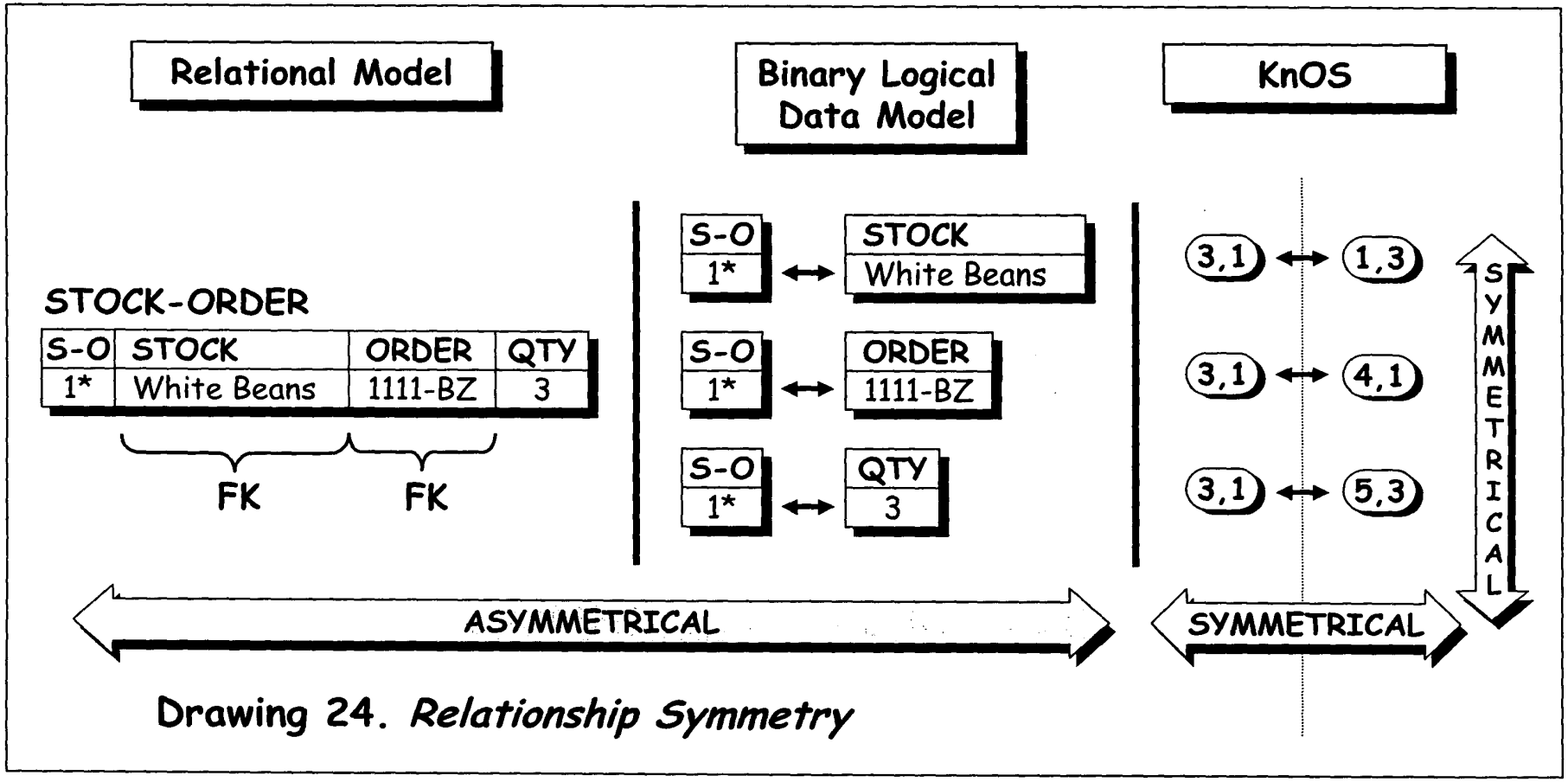
Drawing 21. KnOS Scalability



Drawing 22. Inter-Referencing between Computing Environments



Drawing 23. *Value Symmetry*



Drawing 24. *Relationship Symmetry*

20 distinct ASCII values embedded in Asymmetrical rows & columns of Asymmetrical tables

Primary Relation

ORDER
1111-BZ
1117-CM
1118-SA
1119-TT

Associative Relation STOCK-ORDER

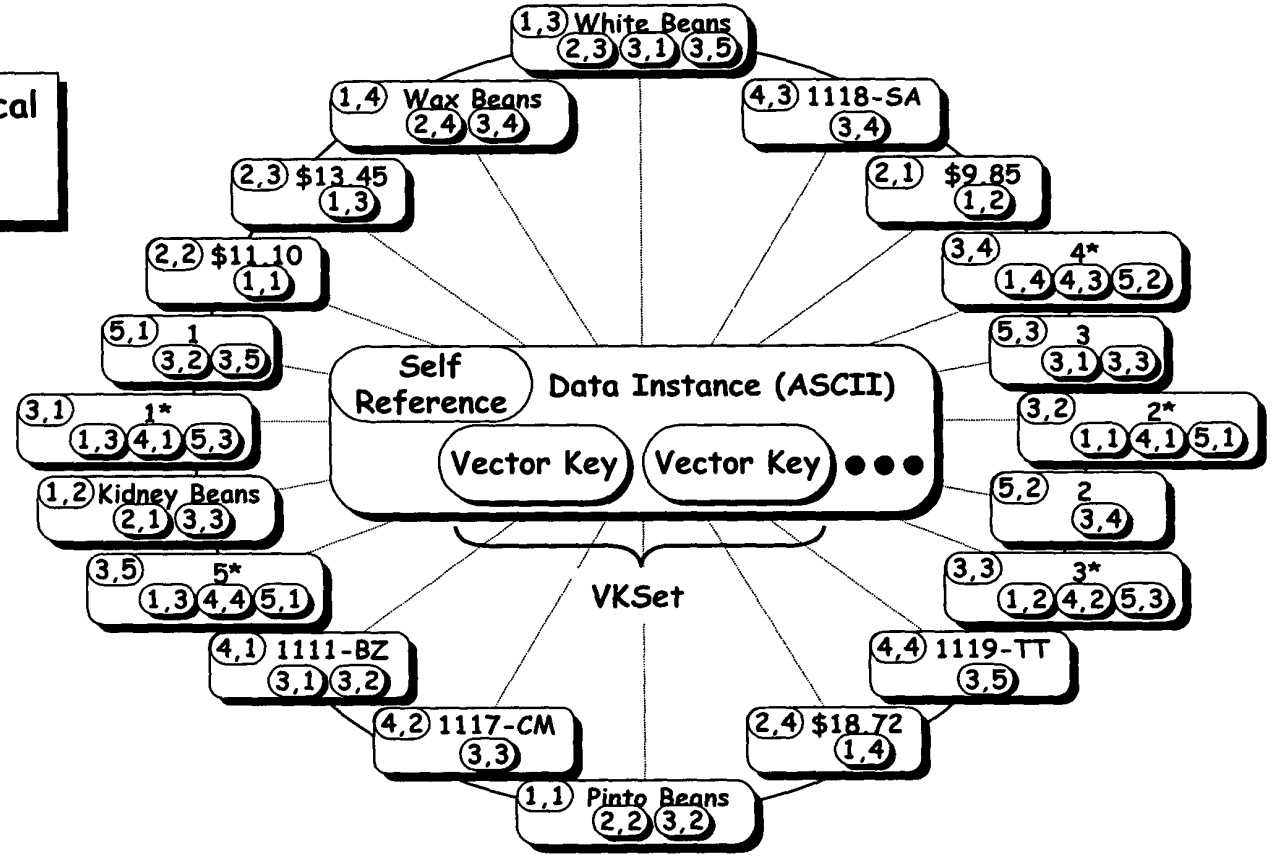
ORDER	S-O	QTY	STOCK
1111-BZ	1*	3	White Beans
1111-BZ	2*	1	Pinto Beans
1117-CM	3*	3	Kidney Beans
1118-SA	4*	2	Wax Beans
1119-TT	5*	1	White Beans

Primary Relation

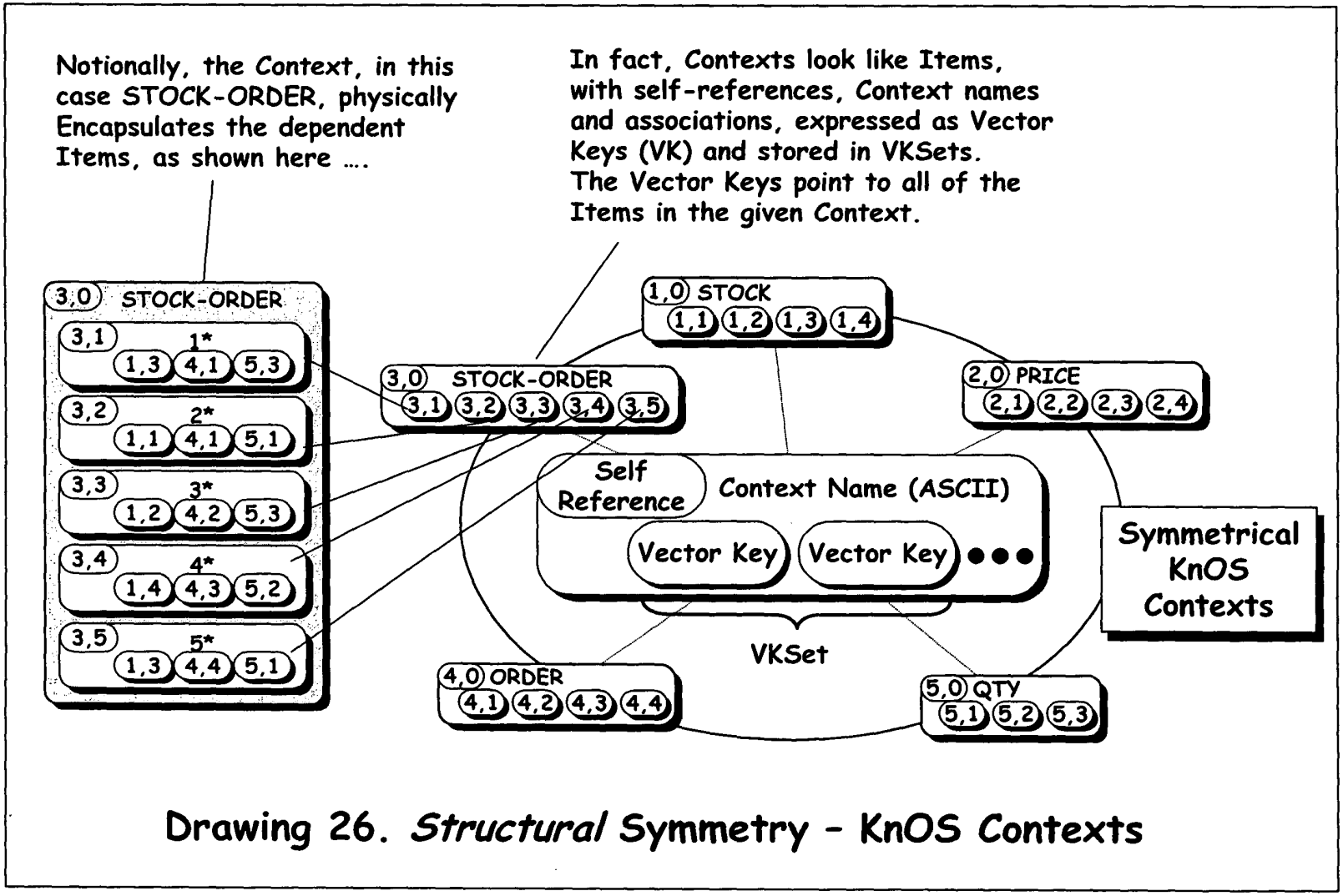
STOCK	PRICE
Pinto Beans	$11.10
Kidney Beans	$9.85
White Beans	$13.45
Wax Beans	$18.72

Symmetrical KnOS Items

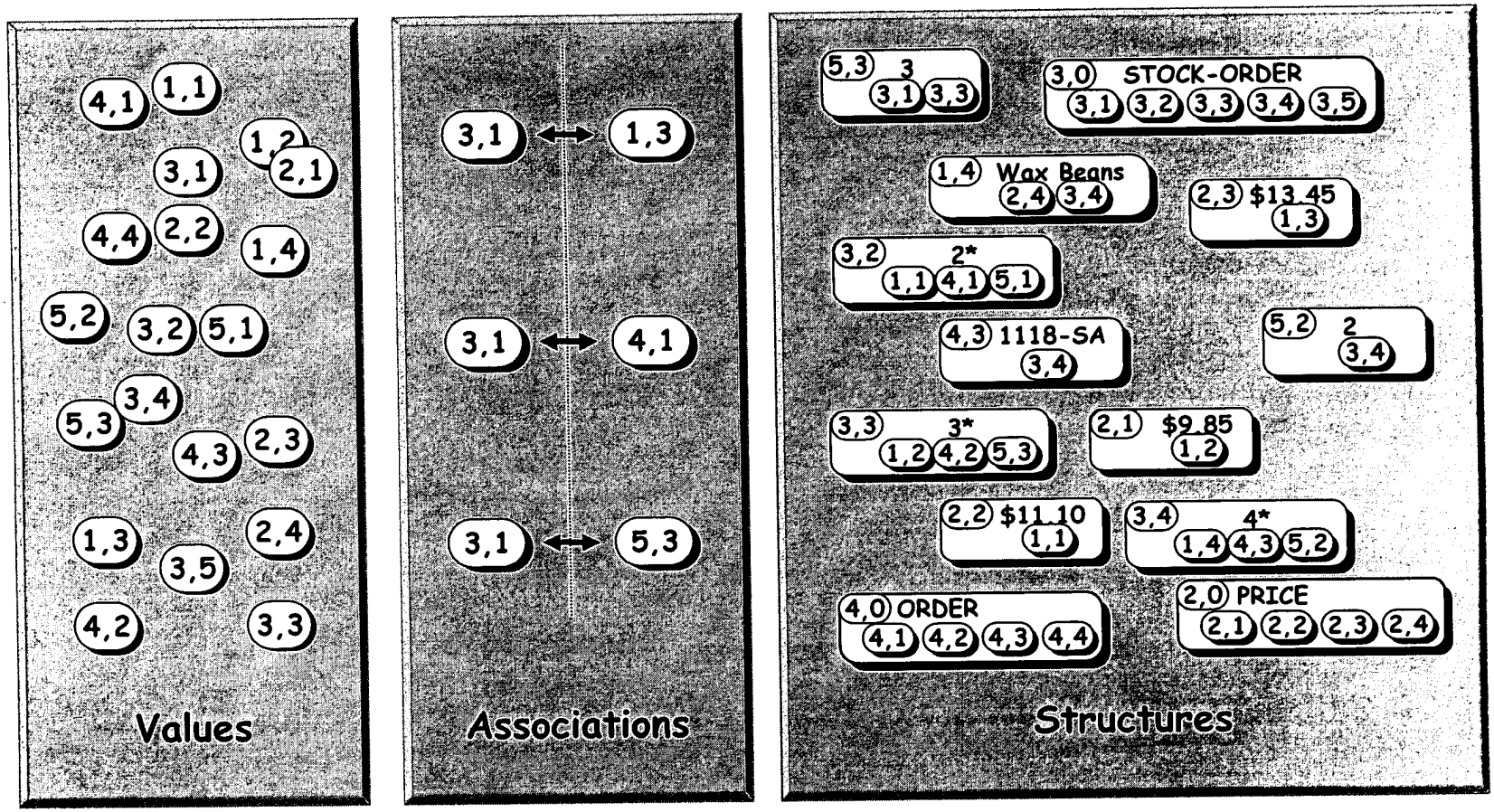
20 Symmetrical Item structures w/19 encapsulated bi-directional relationships referenced with Vector Keys & stored in VKSets



Drawing 25. *Structural* Symmetry - KnOS Items



Drawing 26. *Structural* Symmetry - KnOS Contexts



Drawing 27. KnOS Symmetry

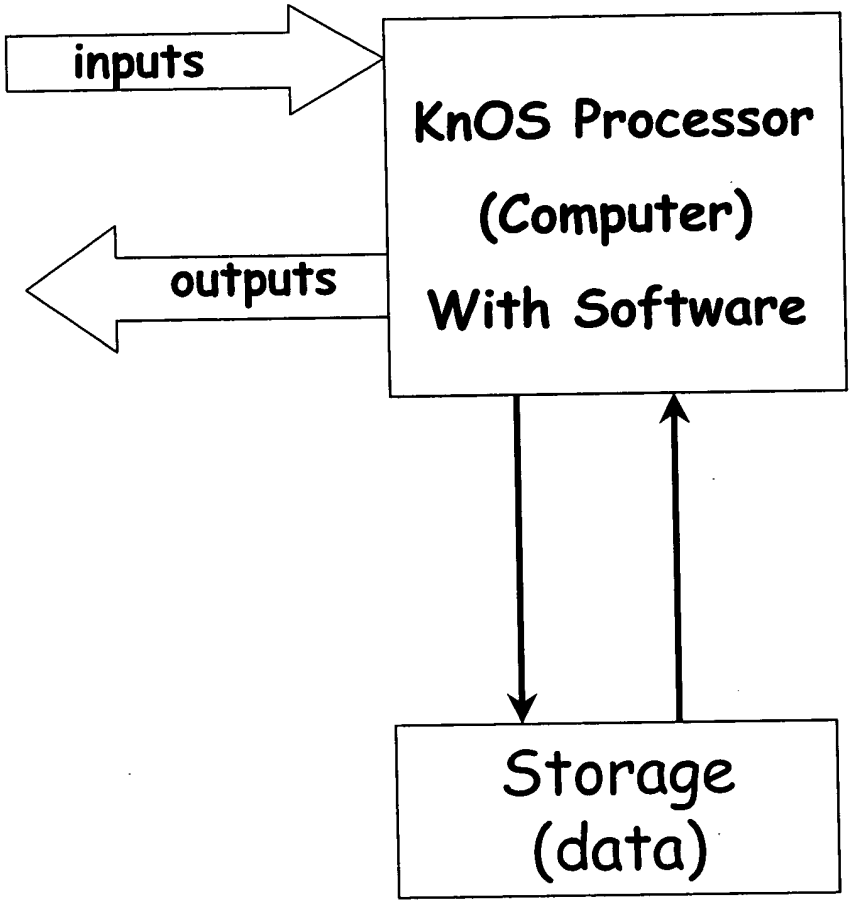

inputs
outputs
KnOS Processor
(Computer)
With Software
Storage
(data)

Figure 28

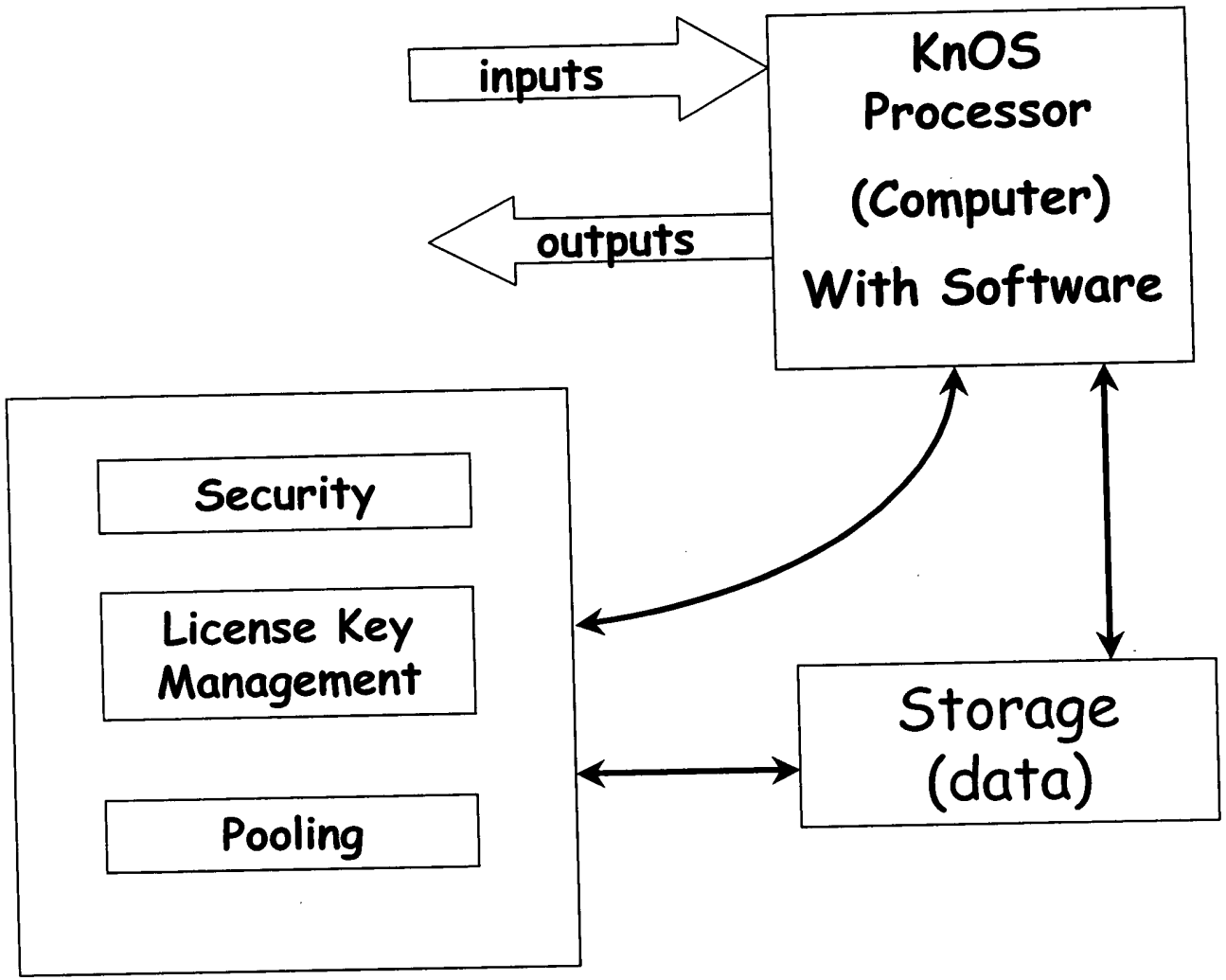
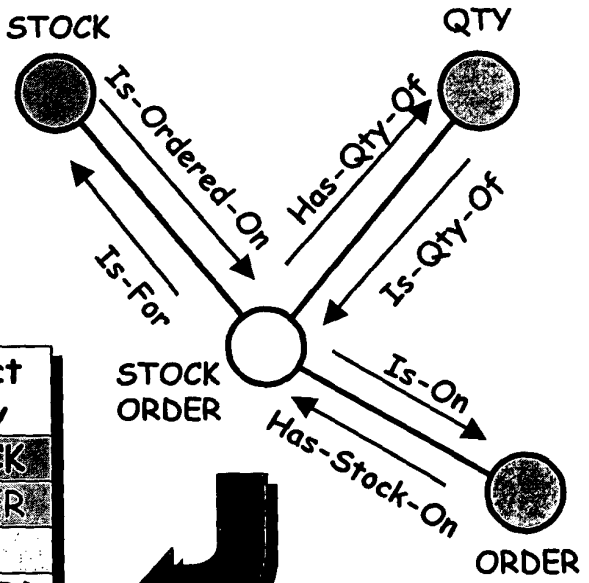

inputs
outputs
KnOS
Processor
(Computer)
With Software
Security
License Key
Management
Pooling
Storage
(data)

Figure 29

Relational Model

one tuple of STOCK-ORDER

SO	ORDER	QTY	STOCK
1*	1111-BZ	3	White Beans



Binary Data Model in Relational Format

Type Classifications

Subject Entity	Verb Phrase	Object Entity
ST-ORD	Is-For	STOCK
ST-ORD	Is-On	ORDER
ST-ORD	Has-Qty-Of	QTY
STOCK	Is-Ordered-On	ST-ORD
ORDER	Has-Stock-On	ST-ORD
QTY	Is-Qty-Of	ST-ORD

Entities

Entity	Item
STOCK	White Beans
STOCK-ORDER	1*
ORDER	1111-BZ
QTY	3

Associations

Subject Entity	Subject Item	Verb Phrase	Object Entity	Object Item
ST-ORD	1*	Is-For	STOCK	White Beans
ST-ORD	1*	Is-On	ORDER	1111-BZ
ST-ORD	1*	Has-Qty-Of	QTY	3
STOCK	White Beans	Is-Ordered-On	ST-ORD	1*
ORDER	1111-BZ	Has-Stock-On	ST-ORD	1*
QTY	3	Is-Qty-Of	ST-ORD	1*

Figure 30 (Prior Art)

A Comparison of Compactness